United States Patent [19]

Schneider

[11] **Patent Number: 4,626,250**

[45] **Date of Patent: Dec. 2, 1986**

[54] **MALE URINARY COLLECTION SYSTEM AND EXTERNAL CATHETER THEREFOR**

[75] Inventor: **Barry L. Schneider, Deerfield, Ill.**

[73] Assignee: **Hollister Incorporated, Libertyville, Ill.**

[21] Appl. No.: **829,318**

[22] Filed: **Feb. 14, 1986**

Related U.S. Application Data

[63] Continuation of Ser. No. 613,279, May 24, 1984, Pat. No. 4,581,026, which is a continuation-in-part of Ser. No. 521,224, Aug. 9, 1983, abandoned, which is a continuation of Ser. No. 271,086, Jun. 5, 1981, abandoned.

[51] **Int. Cl.**[4] **A61F 5/458**

[52] **U.S. Cl.** **604/352**; 604/346; 604/347; 604/349; 604/350; 604/351; 604/353

[58] **Field of Search** ..... 128/760, 767, 138 R, 128/132 R; 604/349, 346, 343, 347, 345, 350, 351, 352, 353; 119/14.42, 14.5

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,423,537	7/1922	Müller	128/295
1,490,793	4/1924	Ajamian	128/295
3,353,538	11/1967	Carrigan	128/295
3,520,305	7/1970	Davis	128/295
3,559,651	2/1971	Moss	128/295
3,721,243	3/1973	Hesterman	128/295
3,835,857	9/1974	Rogers et al.	128/295
3,863,638	2/1975	Rogers et al.	128/295
4,187,851	2/1980	Hauser	128/295
4,239,044	12/1980	Caulinch	128/295
4,270,539	6/1981	Frosch et al.	604/341

FOREIGN PATENT DOCUMENTS

2349361	4/1975	Fed. Rep. of Germany	128/132 R
162302	2/1958	Sweden .	
217210	12/1924	United Kingdom .	
669063	3/1952	United Kingdom .	
2041753	9/1980	United Kingdom .	
2048680	12/1980	United Kingdom .	

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Attorney, Agent, or Firm—Tilton, Fallon, Lungmus

[57] **ABSTRACT**

An external catheter, and the methods of making and using such a catheter, for a male urinary incontinence collection system, such system also including an adhesive attachment for holding the catheter in place. The catheter takes the form of a tubular sheath of thin elastic material having a cylindrical body section, a tapered neck section extending from the body section, and a reduced drainage tube section projecting from the neck section. Within the sheath, and constituting a unitary part thereof, is a tubular inner sleeve of soft elastic material having a distal end portion disposed within the neck section and a proximal end portion merging with the sheath's cylindrical body section. The sleeve tapers distally to define an annular space thereabout, and terminates in a reduced distal opening located at an intermediate point within the neck section. The sheath may be produced by a dipping process that includes the preliminary step of stretching a pre-formed tubular member (which ultimately forms the inner sleeve) over a dipping form, followed by successive dipping steps.

4 Claims, 21 Drawing Figures

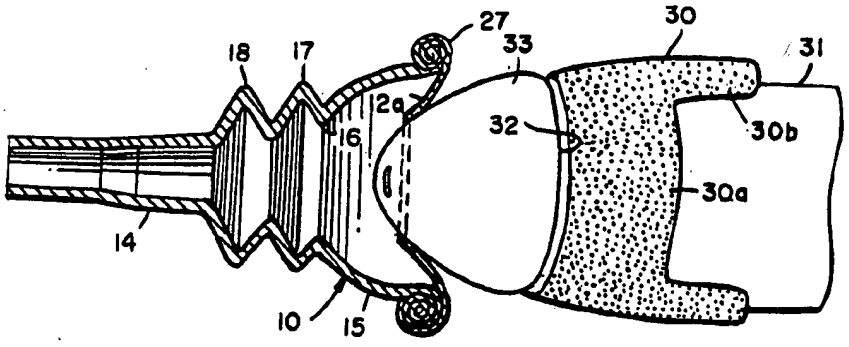


FIG. 1

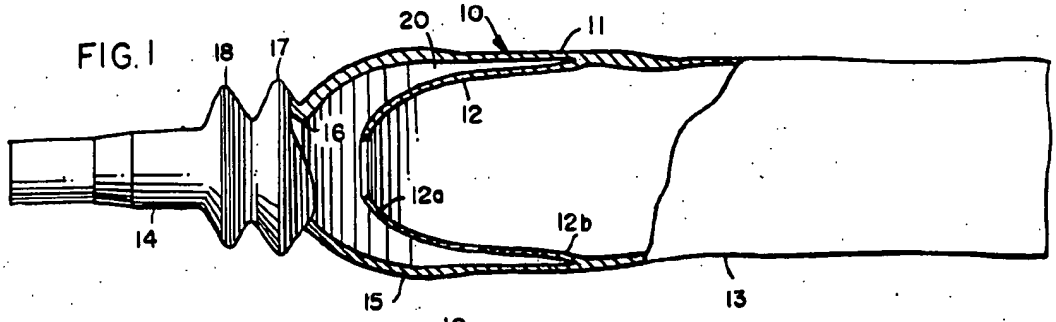


FIG. 2

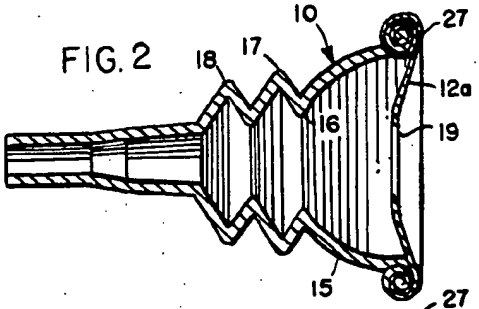


FIG. 3

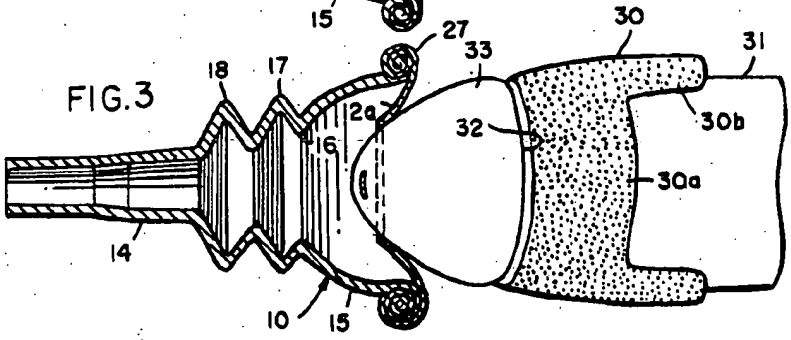


FIG. 4

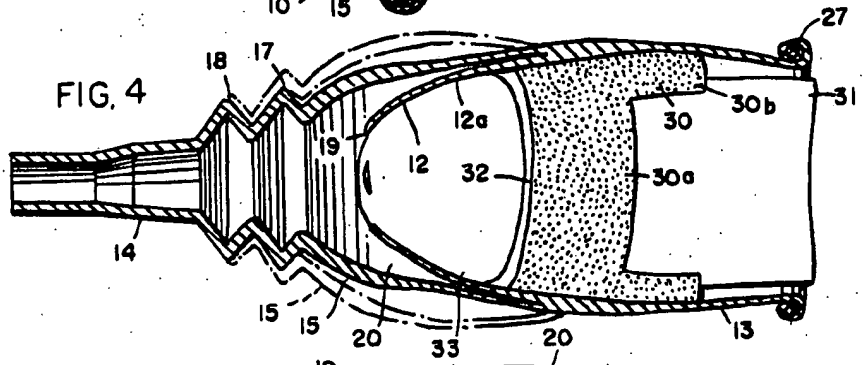


FIG. 5

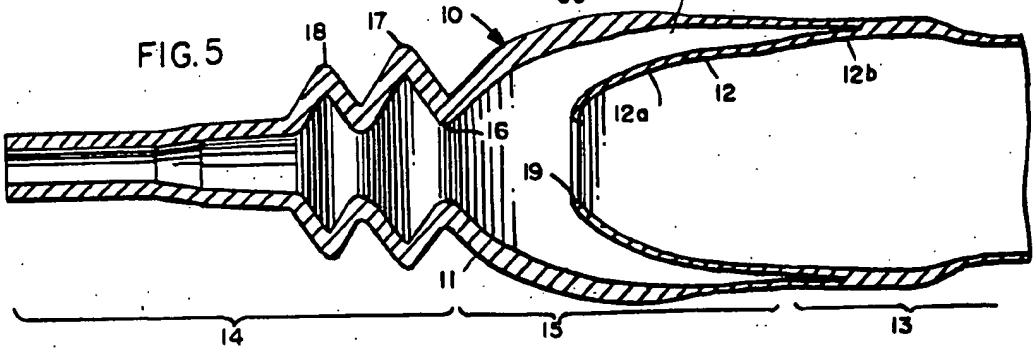


FIG. 7

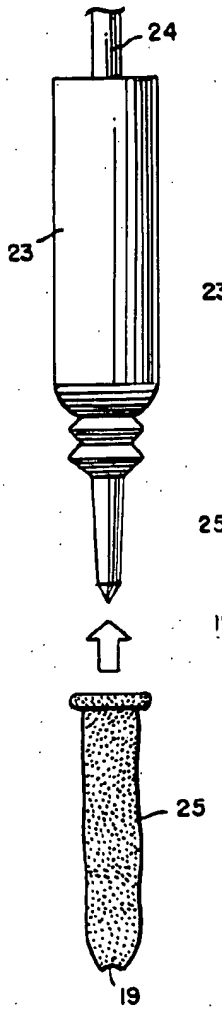


FIG. 8

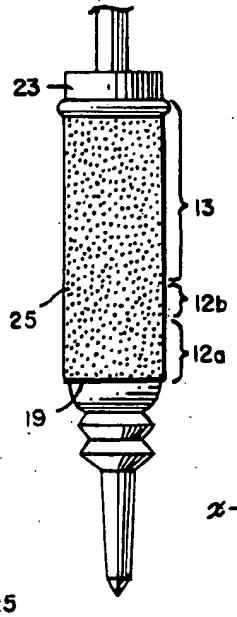


FIG. 9

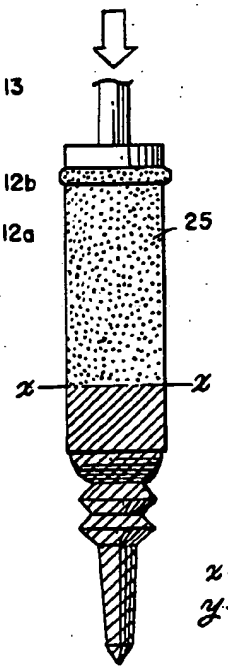


FIG. 10

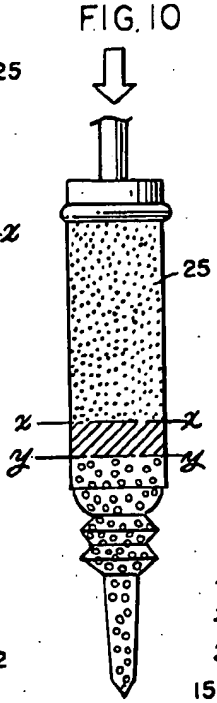


FIG. 11

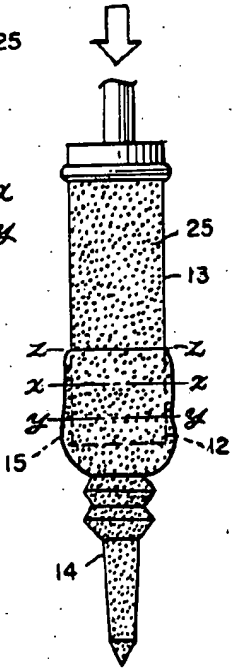


FIG. 6

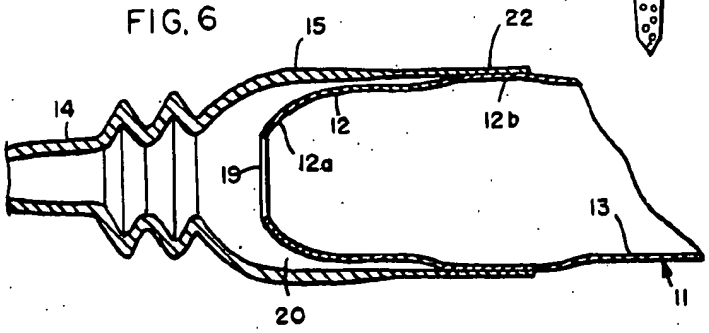


FIG. 13

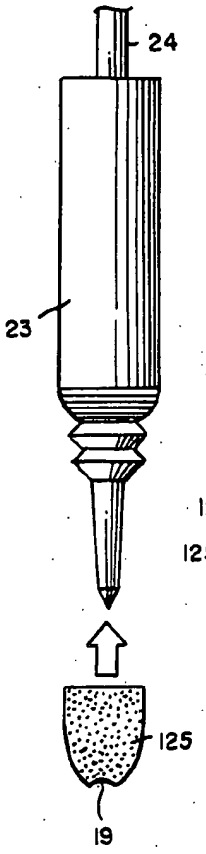


FIG. 14

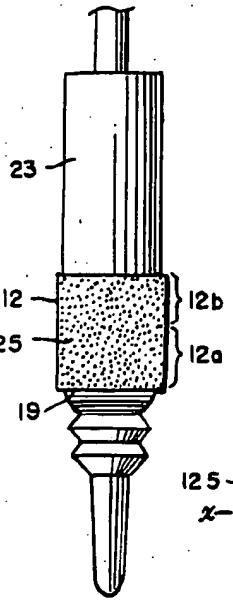


FIG. 15

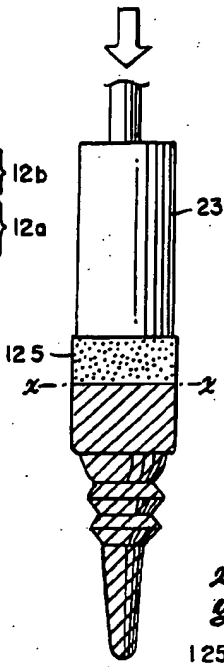


FIG. 16

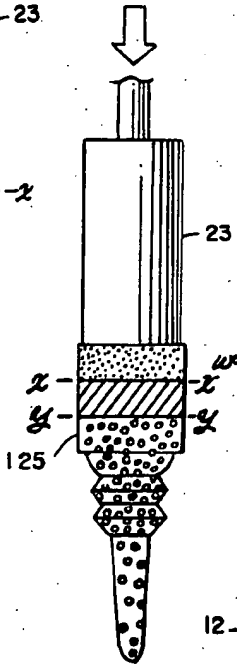


FIG. 17

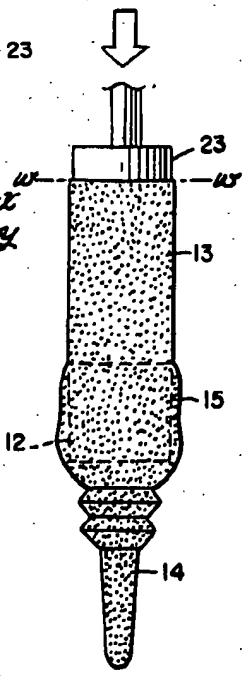


FIG. 12

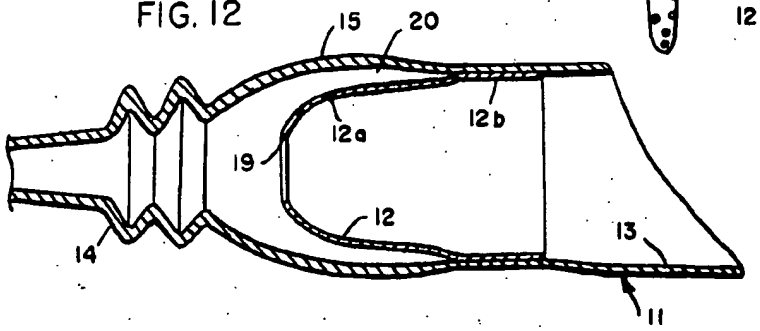


FIG. 18

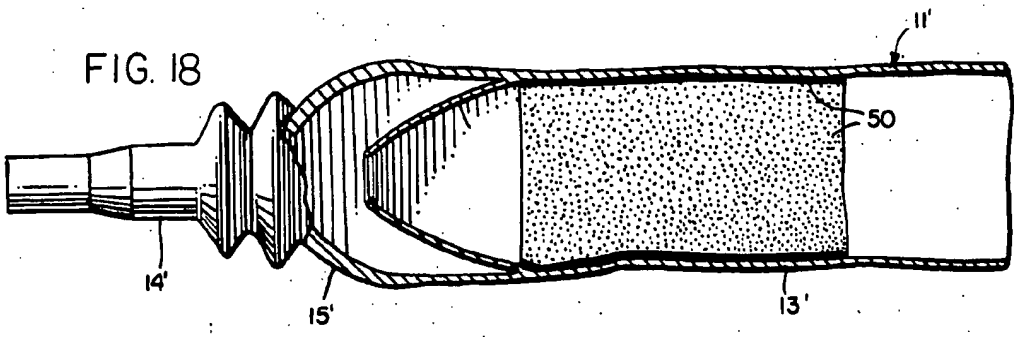


FIG. 19

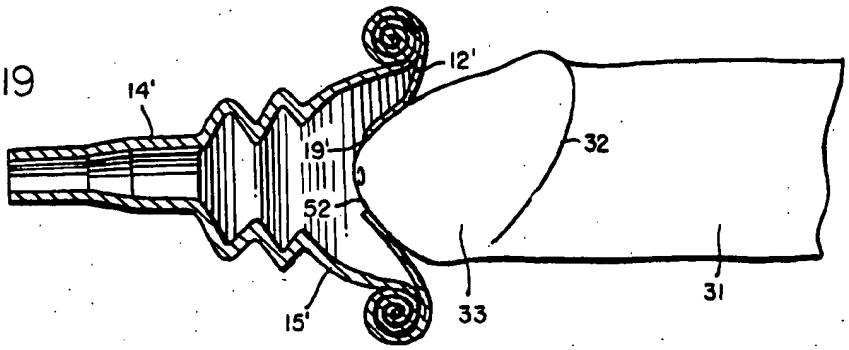


FIG. 20

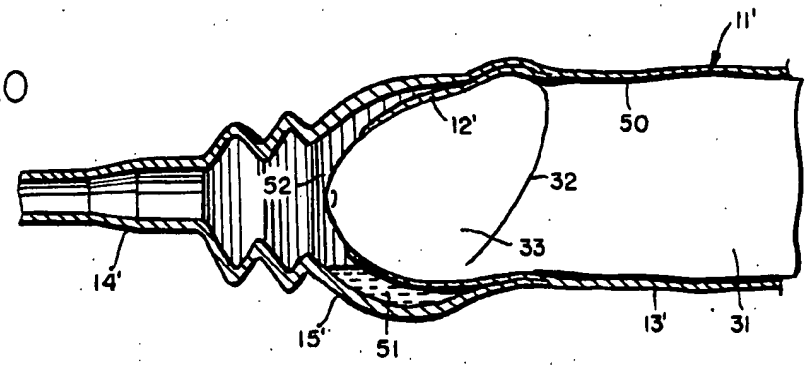
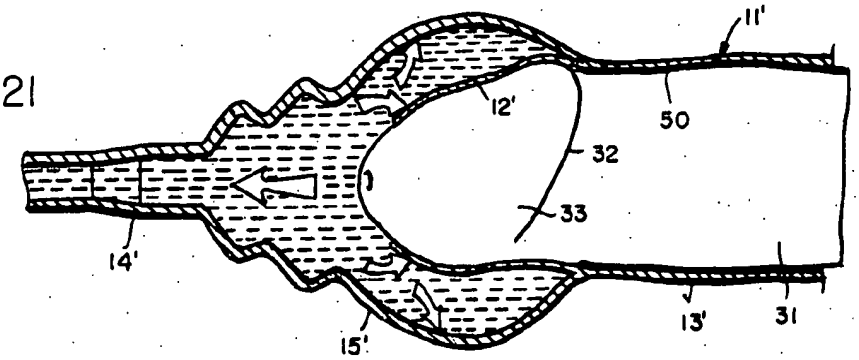


FIG. 21



MALE URINARY COLLECTION SYSTEM AND EXTERNAL CATHETER THEREFOR

RELATED APPLICATIONS

This application is a continuation of co-pending application 613,279, filed May 24, 1984, now U.S. Pat. No. 4,581,026, which was a continuation-in-part of application 521,224, filed Aug. 9, 1983 (abandoned), which in turn was a continuation of application 271,086, filed June 5, 1981 (abandoned).

BACKGROUND AND SUMMARY

In co-pending co-owned patent 4,378,018, there is disclosed a male urinary drainage device composed of a thin resilient external catheter and an underlying adhesive sealant pad for holding the catheter in place and for producing an effective seal to prevent urine backup and leakage. The pad is formed of compressible, deformable, water-resistant, and elastic sealant material and includes a ring portion adapted to seal about the penis at or directly behind the glans thereof and a pair of integral strap portions projecting from the ring portion and intended to extend inwardly (proximally) along the penile shaft. The strap portions function primarily to provide catheter retention, whereas the ring portion coacts with the retained catheter and with the penis to serve primarily as a barrier against fluid backup.

The external catheter of U.S. Pat. No. 4,378,018 is provided with convolutions of graduated size in the neck region between the catheter's cylindrical body portion and its reduced drainage tube portion. Such convolutions permit axial as well as radial expansion and contraction and thereby absorb tensioning forces that might otherwise occlude the lumen or reduce effectiveness of the seal between the pad and catheter, or pad and penis, or both. In addition, the convolutions increase the internal capacity of the neck region to accommodate sudden discharges of urine, thereby reducing the possibilities of fluid backup, or disengagement of or damage to the drainage device, under such circumstances.

Conditions may nevertheless arise where a surge of fluid may create a back pressure that may weaken the adhesive seal between the pad and catheter, or between the pad and the penis, resulting in leakage. Should the neck portion of the catheter become enlarged or distorted because of fluid pressure, the forces generated by such pressure will tend to urge the inner surfaces of the catheter laterally out of sealing contact with the annular portion of the pad. Furthermore, apart from the possibility of leakage arising because of surges of fluid causing a failure of the adhesive seal, there is always the risk that gradual deterioration of that seal will occur because of exposure to the urine over an extended period, or that the material of the pad will tend to deteriorate because of continuous exposure to fluid, resulting in undesirable back flow and leakage.

U.S. Pat. No. 2,940,450 discloses a drainage device in the form of an external catheter connected to a flexible tube leading to a suitable receptacle, the catheter being held in place by drawstrings which may be tied together to produce a secure fit. In U.S. Pat. No. 3,835,857, elastic adhesive tape is wrapped about the catheter in place of drawstrings, and in U.S. Pat. No. 3,863,638 a liner is disposed between the catheter to reduce leakage and promote patient comfort. U.S. Pat. No. 4,187,851 discloses a method of forming such a liner in place by wrapping the penile shaft with a double-faced adhesive strip prior to application of the elastic external catheter.

Those devices that have the advantage of being easily and quickly applied tend to be less effective in terms of retention and prevention of fluid backup, whereas those that are more satisfactory in the latter respects are often relatively difficult to apply and more likely to cause patient discomfort and urethral constriction. Ease of application and removal are particularly important because an incontinent patient may have other disabilities that make complicated manipulations difficult if not impossible to perform. Other patents reflecting the state of the art are 364,932, 3,721,243, 3,361,857, 3,511,241, 2,891,546, 4,022,213, 3,526,227, 3,353,538, 1,423,537, 1,015,905, 3,604,424, 4,239,044, 1,490,793, 3,559,651, and 3,405,714.

One aspect of this invention lies in the recognition of the problem of maintaining effective adhesive seals under the conditions described above; a second aspect lies in recognizing that the degradation or rupture of such seals may be prevented by providing the external catheter with an elastic tapered internal sleeve disposed within the neck portion of the outer sheath. In use of the catheter, the sleeve is stretched into sealing engagement with the glans to provide a barrier that tends to prevent liquid from migrating rearwardly or proximally towards the adhesive attachment between the cylindrical portion of the catheter and the penis. Should a surge urine within the neck portion of the catheter cause back pressure, such pressure only tends to increase the effectiveness of the liquid barrier formed between the glans and the sleeve stretched thereabout. Furthermore, when an annular portion of the sleeve is in direct contact with the adhesive pad, as where the sleeve extends slightly behind (proximal to) the corona of the glans, such back pressure increases rather than diminishes the force of adhesive contact with the wearer and thereby promotes an even more effective adhesive seal.

In a preferred embodiment, the adhesive attaching means takes the form of a pressure sensitive adhesive coating along the inner surface of the sheath's cylindrical portion directly behind the sheath's tapered neck section. In some cases the adhesive coating may also be applied to a narrow annular band at the proximal extreme of the sleeve; however, in that event the band should be narrow enough that adhesive contact with the wearer is still limited to an area behind (proximal to) the corona of the glans. Instead of an adhesive coating, the adhesive means may alternatively take the form of a resilient skin-protecting adhesive pad of the type disclosed in aforementioned U.S. Pat. No. 4,378,018, particularly as shown in FIGS. 8–13 thereof. In either case, the adhesive means serves the important function of holding the sheath in position with its stretched inner sleeve retained in protective non-adhesive sealing engagement with the glans. The sleeve includes a proximal end portion, merging and permanently interated with the cylindrical body section of the sheath, and an elongated distal end portion extending and tapering distally into the sheath's neck section. The elongated distal end portion of the sleeve terminates in a reduced opening spaced axially from the distal end of the neck section and has an outer surface unsecured and normally spaced from the neck section along the full length and circumferential extent of the sleeve's distal end portion to provide an expansion space between the sleeve and the neck section. Any increase in pressure

within the annular space about the sleeve only tends to urge the sleeve into tighter sealing engagement with the glans. The result is an external catheter which has the advantages of adhesive attachment in terms of patient comfort and convenience, in contrast to prior devices requiring belts, harnesses, and the like, and which at the same time provides a high degree of security against fluid backup and leakage, protects the sensitive dermal surfaces of the glans against direct exposure to urine and the excoriating effects that prolonged fluid contact might otherwise produce, and maintains an effective fluid-tight seal without the discomforts of direct adhesive contact with the glans.

The catheter may be formed in a dipping process that includes the preliminary step of stretching a pre-formed tubular member, ultimately to become the inner sleeve, over a dipping form. In its unstretched or untensioned state, the tubular member has a distal end portion that tapers and terminates in a reduced distal opening. After stretching the tubular member upon the form, the distal end portion of that member is treated to prevent liquid latex from bonding thereto. Thereafter, the form is dipped into a latex bath and the latex coating is then cured to produce the outer sheath, or at least that portion of the outer sheath surrounding the inner sleeve. When the catheter is stripped from the form, the sleeve returns to its original untensioned state, thereby creating an annular space between the outer distal portion of the sleeve and the inner surface of the sheath's neck section.

Other features, objects, and advantages of the invention will become apparent from the drawings and specification.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a side elevational view, shown partly in section, of an external catheter embodying the present invention, the sheath of the catheter being depicted in unfolded or unrolled condition.

FIG. 2 is a view similar to FIG. 1 but showing the sheath in rolled condition as it would appear prior to application.

FIGS. 3 and 4 illustrate the steps of placing the catheter over a penis upon which an adhesive and protective sealing pad has been fitted.

FIG. 5 is an enlarged fragmentary generalized sectional view of a catheter showing the relationship between the inner sleeve and sheath.

FIG. 6 is a fragmentary sectional view illustrating the relationship between sheath and sleeve in one embodiment of the catheter, and FIGS. 7–11 illustrates the sequence of steps for forming a catheter having such a relationship of elements.

FIG. 12 is a fragmentary sectional view depicting a second embodiment, and FIGS. 13–17 show the method steps for forming a catheter having the relationship of elements represented by the second embodiment.

FIG. 18 is an elevational view shown partly in section of a third embodiment.

FIG. 19 illustrates the step of placing the catheter of the third embodiment upon the penis.

FIG. 20 is a fragmentary sectional view showing the sheath of the third embodiment fitted upon by the penis and also showing the protective effect of the inner sleeve in shielding the glans against liquid contact.

FIG. 21 is a sectional view similar to FIG. 20 but showing, in somewhat exaggerated form for illustrative purposes, the sheath of the third embodiment as a surge of urine suddenly expands the sheath's stretchable neck section.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the drawings, the numeral **10** generally designates an external catheter formed of soft, highly elastic, natural or synthetic rubber. Natural latex is preferred but other elastomers having similar properties may be used. The catheter includes an elongated outer sheath **11** and an inner sleeve **12**, the two being integrated or permanently joined in the manner hereinafter described.

Referring to FIG. **1**, the sheath **11** includes an elongated cylindrical section **13**, a reduced drainage tube section **14**, and a tapered neck section is disposed therebetween. The wall thickness of the cylindrical section **13** is substantially less than that of the neck and drainage tube sections. For example, the cylindrical section may have a wall thickness within the general range of 0.006 to 0.010 inches and, in general, is too thin or limp to retain a cylindrical configuration without support. In contrast, the wall thicknesses of the drainage tube and neck sections may be 0.050 inches or more and are generally great enough so that such sections will retain the configurations shown in the absence of distorting forces and will spring back into the illustrated shapes when distorting forces are removed.

At its forward or distal end, neck section **15** is provided with a rounded taper leading to a reduced opening **16**. The drainage tube section **14** that merges with the tapered neck section **15** is provided with a plurality of convolutions or annular enlargements **17** and **18**. Two such convolutions of graduated size are depicted, their purpose being to permit greater stretchability, bending, and twisting of the drainage tube section when the device is in use, and to do so with less chance that kinking or obstruction of the lumen might occur. Also, since the interior of the drainage tube section is enlarged at such convolutions, the convolutions increase the fluid capacity of that section and provide a reservoir for accommodating surges of fluid when the device is in use.

The inner sleeve **12** has a distal end portion **12*a*** disposed within the neck section of the sheath and a proximal end portion **12*b*** within the sheath's cylindrical body section. The relationship is depicted most clearly in the generalized and enlarged view of FIG. **5** where it will be seen that the proximal end portion has about the same cross sectional dimensions as the cylindrical body section and merges smoothly with that section, while the distal portion **12*a*** tapers forwardly and inwardly, terminating in a reduced distal opening **19**. Opening **19** is spaced well behind (i.e., proximal to) opening **16** at the distal end of neck section **15**. The setback also results in the provision of an annular space **20** between the outer surface of the sleeve's distal end portion **12*a*** and the inner surface of neck section **15**. The wall thickness of the sleeve **12** may be varied but, to insure conformability, good sealing properties, and wearer comfort, such thickness should approximate that of the relatively thin cylindrical body section **13** of the sheath. Thus, both the cylindrical body section **13** and the inner sleeve **12** should appear as thin, limp, highly stretchable membranes, in contrast to the drainage tube and neck sections **14**, **15** with their shape-retaining properties.

In FIGS. **1** and **5** the sheath **11** and inner sleeve **12** are shown as merging smoothly with one another. Al-

though the sheath and sleeve are indeed permanently integrated, and are formed of essentially the same material, they may be formed separately to facilitate production and to achieve the desired setback of the sleeve within the neck section of the sheath. FIG. 6 illustrates a construction wherein the sleeve 12 is actually a continuation of the cylindrical body section of the sheath. The neck section 15 is permanently joined to the body section 13 at 22. Such a construction may be made in accordance with the steps depicted in FIGS. 7-11.

FIG. 7 shows a dipping form 23 having a support shaft 24 that may be mounted upon any suitable reciprocable mechanism (not shown) for dipping the form into a suitable bath of liquid latex. Prior to any dipping operations, an open-ended latex tubular member 25 is stretched upon the cylindrical portion of the form (FIG. 8). Such a fitting and stretching operation may be most readily performed starting with the tubular member 25 in fully rolled condition. The rolled annulus is then simply slipped upwardly onto the lower end of the form 23, is advanced until the reduced opening 19 at the member's lower end is stretched to receive the lower end of the cylindrical portion of the form, and the annulus is then unrolled. Except for the provision of opening 19 at its lower end, tubular member 25 is generally similar to a conventional latex condom.

While some stretching of the upper portion of member 25 necessarily occurs as that member is fitted upon form 23, the greater stretching occurs at the lower portion of that member because in its relaxed state such lower portion is provided with a rounded taper leading to opening 19 (FIG. 7). It is the stretched lower portion of the tubular member that will ultimately become the elongated distal portion 12*a* of the sleeve of the finished catheter (FIG. 8). The upper portion, subjected to only minimal stretching, is to become the cylindrical section 13 of the sheath.

The form 23 with the elastic tubular member stretched thereon is then subjected to successive dipping steps to produce the neck section and drainage tube section of the final catheter. FIG. 9 indicates that the form is first dipped to a level x—x in a solution or suspension of a suitable release agent that will prevent latex solution from adhering to the treated surface. An alcohol suspension of diatomaceous earth marketed under the designation Snow Floss by Johns-Mansville Corporation, New York, N.Y., has been found particularly effective, but other release agents having similar properties may be used. Thereafter, the form is dipped into an aqueous slurry of calcium nitrate or other suitable activator capable of causina thickening of the latex layer to be subsequently formed by a dipping process, all as well known in the art, and diatomaceous earth. It will be observed that the level y—y to which the form is dipped into the activator slurry is spaced below the level x—x of the release agent treatment (FIG. 10).

After removal of the form from the activator slurry, the coating is allowed to air dry for a short interval (1 to 3 minutes), and the form is then lowered slowly into a latex bath to a level z—z spaced above x—x as indicated in FIG. 11. The form should remain within the bath for an interval within the range of about 4 to 5 minutes; thereafter, the form is removed, dipped in and out of a coagulant solution of calcium nitrate in alcohol. One or more additional dippings into the latex solution, followed by exposure to coagulant, may be undertaken to develop the desired wall thickness. Thereafter, the form or mandrel with the dip coating thereon is placed in an oven at approximately 135° F. for 40 minutes to cure the latex. The form and nearly completed catheter retained thereon are introduced into a water bath maintained at approximately 160° F. for an interval of 30 minutes or more to leach impurities therefrom. Following the leaching step, the catheter is stripped from the form or mandrel, treated with talc to prevent the latex from sticking to itself, and dried. The catheter is completed by cutting away the tip to form the opening at the distal end of the drainage tube section. The end result is a catheter as generally depicted in FIGS. 1 and 5 but in which the layers are formed or joined in the manner specifically illustrated in FIG. 6.

Effective bonding between the two layers of latex may be enhanced by the use of solvents or adhesives applied to the annular zone of the tubular member 25 between lines x—x and y—y. It has been found, however, that an effective bond sufficient to permanently integrate the two layers may be simply achieved by dipping the tubular member into a bath of the coagulant described above following the step of fitting the member 25 upon mandrel 23 (FIG. 8) and before the step of dipping the form into the release agent (FIG. 9). The coagulant coating should be air dried for a short interval (approximately one minute) prior to the dipping step of FIG. 9.

The external catheter of FIGS. 1 and 5 may also be made in accordance with the method steps depicted in FIGS. 13-17 to produce a construction having the particular arrangement of layers shown in FIG. 12. In that embodiment, the inner sleeve 12 is formed from the pre-formed tubular member 125 stretched upon the form or mandrel 23, and the cylindrical section 13, neck section 15, and drainage tube section 14 are then formed by a dipping process and are thus integrated with the tubular sleeve. The procedural steps are similar to those described in connection with FIGS. 7-11 except that the tubular member 125 is relatively short and the cylindrical section 13 of the sheath is formed during the dipping process rather than being provided as an extension of the pre-formed tubular member.

Specifically, the open-ended latex tubular member 125, having a tapered lower end with a reduced opening 19, is stretched over form 23 into the position depicted in FIG. 14. The form is dipped into a coagulant bath and, following an air-drying interval of approximately one minute, is then dipped into a solution or suspension of the release coating material to a level x—x represented in FIG. 15. The form is then dipped into the activator bath of calcium nitrate solution to level y—y (FIG. 16) and, after an air-drying period of approximately 2 minutes, is successively dipped into latex and coagulant baths. The latex-dipping steps are essentially the same as previously described except that the form is lowered into the latex and coagulant baths to a level w—w near the upper end of the cylindrical body of the form or mandrel 23 (FIG. 17). The leaching, stripping, and trimming steps are the same as previously described.

It is to be noted that in both methods the tapered portion of the tubular member 25 or 125 is pre-formed and stretched upon the mandrel. In both instances, when the dipping processes are completed and the catheters are stripped from the mandrels, the stretched inner sleeves 12 are free to contract and thereby produce the setback depicted in FIGS. 1, 5, 6, and 12. Specifically, the released distal portions of the sleeves retract axially and proximally to produce the axial spacing between

sleeve opening **19** and sheath opening **16**, and also retract inwardly to form the annular spacing **20** (FIG. **5**).

The catheter would be rolled prior to use, and would normally be marketed in the rolled condition depicted in FIG. **2**. It will be observed that the annular roll **27** is of double thickness, being formed of both the cylindrical body section **13** of the sheath and also a substantial length of sleeve portion **12**. The reduced opening **19** at the distal end of the sleeve, as well as the material of the sleeve immediately surrounding that opening, are therefore fully exposed at the mouth of the rolled catheter.

In use of the external catheter, a patient first applies an adhesive pad **30** to the penis **31** as generally illustrated in FIG. **3**. The particular pad shown in the drawings is the pad disclosed in the aforementioned U.S. Pat. No. 4,378,018; however, it is to be understood that while such a pad is particularly suitable, other types of adhesive pads may be used. The pad might, for example, be a spiral wrapping of adhesive material as disclosed in U.S. Pat. No. 4,187,851 and in other prior art. The particular pad shown in FIG. **3** is preferred because the ring portion **30***a* disposed behind the corona **32** of glans **33** provides a smooth annular surface for sealing contact with the catheter, thereby preventing fluid backup and leakage, while the rearwardly (proximally) extending strap portions **30***b* act primarily as retaining elements for adhesively holding the sheath in place, thereby preventing disruption of the fluid-tight seal in the annular zone behind the corona and particularly the non-adhesive fluid-tight seal formed by the sleeve **12** stretched about the glans. The pad may be formed of any suitable resilient material which is not only deformable but also compressible and at least somewhat elastically recoverable. To obtain these properties, the sealant pad may be prepared from a composition composed principally of an elastomeric material such as synthetic or natural rubber. One such material is described in U.S. Pat. No. 2,570,182, being composed of a blend of nitro rubber and polyvinyl chloride. A material of this kind has been sold under the name "Ensolite", by Uniroyal, Inc. Its use in a sheet arrangement for a male urinary drainage device is described in U.S. Pat. No. 4,187,851. Another such material is composed principally of polyacrylamide and glycerine. This material has been used in ostomy rings and blankets, and has been sold under the name "Crixiline" by Danal Laboratories, Inc., St. Louis, Mo. Other suitable materials can be formulated from gelled mixtures of hydrocolloids such as karaya or carboxymethyl cellulose and polyhydroxy alcohols such as glycerin or propylene glycol, which preferably includes a few percent of fumed silica, as described in co-pending application Ser. No. 383,523, filed June 1, 1982 for "Protective Sealing Composition in Molded Form for Application to the Skin," and prior related applications identified therein, all having a common assignee with the present application. Also, to further improve the desired properties of such compositions for use in the present invention, a minor proportion of polyacrylamide resin can be incorporated, and cross-linked by gamma irradiation. See U.S. Pat. Nos. 4,115,339 and 4,258,715.

The catheter is unrolled over the penis in the manner shown in FIGS. **3** and **4**. Specifically, the rolled catheter is positioned with the exposed apertured portion of sleeve **12** in contact with glans **33**, and the catheter is then unrolled to allow the sleeve to retract into snug contact with the glans.

Since the distal portion **12***a* of the sleeve is under slight tension when the external catheter is properly fitted upon the wearer, most of the surface area of the glans, and the areas of the penile shaft and the adhesive pad **30** proximal to the glans, are protected by the sleeve against direct liquid contact. Should there be a surge in the discharge of urine, an uncontrollable occurrence not infrequently associated with spinal injuries, substantial space is provided within the neck section **15** and the convoluted portion of the drainage tube section to aommodate that surge. Ballooning of the sheath and the development of back pressure may nevertheless occur, as indicated in broken lines in FIG. **4**. However, should such back pressure develop, such pressure would have the effect of urging the distal end portion **12***a* of the sleeve into even tighter contact with glans **33**, thereby reducing the possibility of leakage. Furthermore, any such back pressure applied to the sleeve **12** in the vicinity of adhesive pad **30** will tend to increase the force of contact between the sleeve and pad and further reduce the possibility of leakage. The result is that the external catheter **10**, when used in combination with a suitable adhesive sealing pad, is highly effective in avoiding problems of leakage should sudden surges of fluid, accompanied by the development of back pressure, take place.

It is believed apparent that the external catheter also operates to protect the adhesive seals between pad **30**, catheter **10**, and penis **31** against exposure to liquid under normal conditions of use, thereby resulting in a combination which should be expected to give the wearer greater security against leakage for longer wearing intervals. Minimizing deterioration of the pad and its sealing properties, as well as the greater comfort arising from reduced continuous exposure of the glans and shaft to the back flow of urine, are significant advantages of this construction.

A suitable composition for use in preparing the sealant pads **30** comprises a mixture of hydrocolloid, polyhydroxy alcohol, fumed silica, and polyacrylamide. A general formula for this type of composition is set out below.

General Formula

Ingredients	Parts by Weight
Hydrocolloid	15–25
Polyhydroxy alcohol	50–70
Fumed silica	1–3
Polyacrylamide resin	5–20

In the above formula, the hydrocolloid may be karaya gum or other natural hydrocolloid such as gelatin, pectin, etc., or a synthetic gum such as carboxymethyl cellulose or hydroxyethyl cellulose, or mixtures thereof. The polyhydroxy alcohol is preferably glycerin, or mixtures of glycerin and propylene glycol, but other polyhydroxy alcohols can be used. An example of suitable fumed silicas are the Cab-O-Sil products of Cabot Corporation, Boston, Mass. The polyacrylamide resin may be a "Reten" resin of Hercules, Incorporated, as described in U.S. Pat. Nos. 4,115,339 and 4,258,271. The cited patents also describe gamma irradiation cross-linking of the polyacrylamide resins, which is a desirable procedure in preparing the material for the sealant pads of the present invention. An example of a presently preferred specific formulation is as follows:

Specific Formula	
Ingredients	Weight %
Karaya powder	15.00
Sodium carboxyethyl cellulose	5.00
Polyacrylamide (non-ionic)	10.00
Polyvinyl alcohol	5.00
Fumed silica	2.00
Glycerin	59.73
Propylene glycol	3.05
Methyparaben	0.09
Propylparaben	0.02
Butylparaben	0.11
	100.00%

In compounding the foregoing ingredients, a mixture can first be prepared of the liquid ingredients (glycerin, propylene glycol, and the parabens). Fumed silica is then dispersed in the liquid mixture, and thereafter the other powder ingredients are added (karaya, carboxymethyl cellulose, polyacrylamide, and polyvinyl alcohol). The completed mixture is then molded to form the pads, or formed into sheets for use in preparing the pads. Either in pad or sheet form, the material is preferably subjected to gamma irradiation, preferably from a Cobalt-60 radiation source. The amount of radiation employed should be sufficient to sterilize the material, and to achieve cross-linking of the polyacrylamide resin. For example, a radiation level of 2.5 megarads is satisfactory. To increase tackiness, the final product is then coated with a conventional medical-grade vinyl acrylic pressure sensitive adhesive.

FIGS. 18–21 illustrate an embodiment of the invention which differs from the arrangement of FIGS. 1–5 primarily because the adhesive attachment means takes the form of an adhesive inner coating or layer 50 within the cylindrical section 13' of sheath 11' rather than as a separate adhesive pad 30. The adhesive coating 50 extends proximally from the proximal end of sleeve 12' and is intended to secure the cylindrical section 13' to the shaft of the penis directly behind corona 32. In the illustration given, the coating extends a major portion of the axial length of cylindrical section 11'; however, the coating may have an axial dimension greater or less than that shown. The primary function of the adhesive coating is to secure the cylindrical section 13' to the shaft of the penis behind corona 32 of glans 33 as shown in FIG. 20, thereby functioning as retaining means to maintain the stretched sleeve 12' of the device in protective non-adhesive sealing engagement with glans 33. Because the sleeve is in stretched condition, the sleeve exerts a force tending to urge the entire sheath in a distal direction, and that force is increased when a surge of urine expands the neck section 15 and tends to displace that neck section distally. Such forces are resisted by the adhesive means 50, thereby maintaining the stretched sleeve 12' in contact with the glans. It is important that such retention is achieved without tenacious (and possibly injurious) adhesive contact with the sensitive dermal surfaces of the glans.

In use, the drainage tube section 14' would be connected to a suitable drainage tube (not shown) as previously described. Upon urination, fluid flows from the neck section and drainage tube section to a suitable collector. However, a small residual amount of urine frequently remains within the neck section 15' as represented by numeral 51 in FIG. 20. In the absence of sleeve 12', such residual urine would remain in contact with the glans and could have an injurious excoriating effect on the delicate tissues of the glans near the corona.

Therefore, unlike other external catheters, the catheters of this invention are provided with an inner sleeve 12, 12' that in normal use is stretched about the glans 33, or at least the proximal portion of the glans near the corona, to protect the glans and at the same time prevent leakage of fluid in a proximal direction beyond the sleeve. The adhesive means 30, 50 holds the stretched sleeve in operative condition and also provides a secondary seal to prevent fluid backup. Should a surge of urine cause ballooning of the neck section 15, 15', as indicated in FIG. 4 (broken lines) and FIG. 21, the effect is to force the stretched sleeve into even tighter sealing contact with the glans 33.

The adhesive coating or band 50 may be any suitable medical-grade pressure sensitive adhesive of the type commonly used for medical tapes and other products. An acrylate ester copolymer adhesive as commonly used for adhesive bandages is effective, and other adhesives having similar properties are also well known and may be used. Ideally, the product is supplied to the user in rolled form as depicted in FIG. 19, thereby simplifying application of the sheath and helping to insure that the adhesive coating 50 will be directed into contact only with the less sensitive skin along the shaft of the penis behind the corona of the glans. To prevent the pressure sensitive adhesive from sticking to the outer surface of the sheath when it is to be unrolled, the outer surface may be coated with any suitable elastomeric release agent to which the adhesive has less affinity. A silicone rubber coating along the outer surface of the sheath is effective for that purpose, but other coating materials capable of producing similar results, as well known in the adhesive tape industry (where such tapes are commonly supplied in rolled form and where the adhesive must release from the outer surface of the tape as it is unrolled) may be used. Alternatively, an interliner of the type also commonly used in the tape industry may be interposed between the adhesive coating 50 and the outer surface of the sheath, such releasable interliner being stripped away by the user to expose the adhesive as the sheath is unrolled.

Assuming that the external catheter is supplied to the user in rolled form, the catheter is first positioned as shown in FIG. 19 with the glans of the penis inserted slightly into the opening 19' of sleeve 12'. As the sheath is unrolled, the stretched sleeve 12' is drawn over the major area of the glans directly behind the urethral meatus 52. Finally, the adhesive-coated cylindrical section 13' of the sheath is brought into contact with the shaft of the penis behind corona 32, thereby immobilizing the catheter and maintaining the stretched sleeve 12' in sealing but non-adhesive engagement with the glans.

As indicated, direct tenacious adhesive engagement between the glans and the sleeve is to be avoided and the embodiments of this invention are capable of achieving that objective while at the same time protecting the glans against objectionable liquid contact and securing the catheter in place by adhesive contact elsewhere (behind the coronal ridge). Protection of the proximal surfaces of the glans occurs because the sleeve 12, 12' is stretched about those surfaces, and it is conceivable that such protection might be enhanced if a suitable sealant having little or no adhesive properties were interposed between the sleeve and the glans. A water-insoluble jelly, or any of a variety of sealant com-

positions commonly used in the ostomy field, and in the medical field generally, might be employed. In any event, such sealant should make no substantial adhesive contact with the glans, it being both a purpose and an advantage of this system to avoid such adhesive contact while at the same time providing a protective sealing covering over the glans.

While in the foregoing, embodiments of the invention have been disclosed in considerable detail, it will be understood by those skilled in the art that many of these details may be varied without departing from the spirit and scope of the invention.

I claim:

1. A method of securing an external male catheter upon a wearer to protect surfaces of the glans against injury from direct urine contact while at the same time avoiding objectionable adhesive engagement between the catheter and the glans, comprising the steps of providing an external catheter having a tubular sheath formed of soft elastic material and including a thin-walled cylindrical body section, a reduced drainage tube section, a tapered neck section disposed between said body and drainge tube sections, and an inner sleeve of soft elastic disposed within said sheath and having a proximal end portion merging and permanently integrated with said cylindrical section and an elongated distal end portion extending and tapering distally into said neck section; said elongated distal end portion of said sleeve terminating distally in a reduced opening spaced axially from the distal end of said neck section and having an outer surface unsecured and normally spaced inwardly from said neck section along substantially the full length and circumferential extent of said distal end portion; fitting said catheter upon a wearer's penis with said cylindrical section extending along the shaft of the penis behind the glans thereof and with said inner sleve stretched about the glans and in protective but substantially non-adhesive engagement therewith; and maintaining said inner sleeve in protective substantially non-adhesive engagement with said glans by adhesively securing said cylindrical body section to the shaft of the penis behind the corona of the glans.

2. The method of claim 1 in which said step of adhesively securing said cylindrical body section of said sheath to the shaft of the penis comprises first coating at least a portion of the interior surface of said cylindrical body section with a pressure-sensitive adhesive before fitting said catheter upon the wearer.

3. The method of claim 1 in which said step of adhesively securing said cylindrical bdy section of said sheath to the shaft of the penis comprises placing an adhesive pad having tacky adhesive inner and outer surfaces about the penile shaft directly behind the glans prior to the step of fitting said catheter upon the wearer.

4. The method of claim 1 in which said catheter is provided with said cylindrical body section and the proximal portion of said sleeve in rolled form to expose the distal portion of said sleeve in stretched condition within said neck section; said catheter being fitted upon the wearer by first urging the glans into contact with the stretched sleeve of the rolled catheter and with the urethral meatus aligned with the distal opening of said sleeve, and then unrolling said catheter to cover the remainder of said glans with said sleeve and to unroll said cylindrical body section over the penile shaft behind said glans.

* * * * *

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Heininger

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[45] Date of Patent: Sep. 12, 2000

[54] **URINARY CATHETER SYSTEM**

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[22] Filed: **May 6, 1999**

[51] **Int. Cl.**[7] **A61F 5/44**

[52] **U.S. Cl.** **604/349**; 604/347

[58] **Field of Search** 604/346, 544, 604/347, 349, 350, 351, 327–336, 352

[56] **References Cited**

U.S. PATENT DOCUMENTS

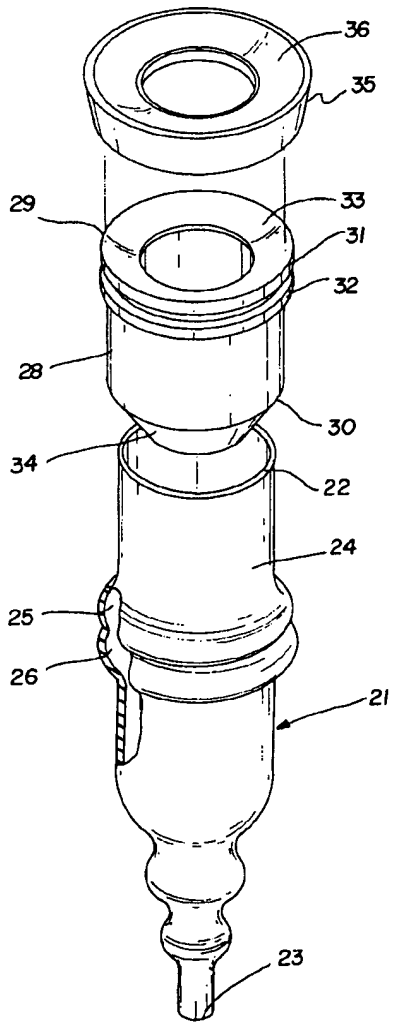
4,387,726	6/1983	Denard	128/760
5,695,485	12/1997	Duperret et al.	604/349
5,752,944	5/1998	Dann et al.	604/352

Primary Examiner—Corrine McDermott
Assistant Examiner—Ann Y. Lam

[57] **ABSTRACT**

A catheter system for providing a secure fit over a user's penis. The catheter system includes a tubular outer sheath has proximal and distal ends. A collection bag is in fluid communication with the distal end of the outer sheath. A tubular elastic inner sheath is disposed in the outer sheath. The inner sheath has open proximal and distal ends. A tubular insert has open proximal and distal ends and is disposed in the inner sheath. The proximal and distal ends of the insert each has an inwardly radiating elastic annular membrane. An annular collar is provide having a water absorbent inwardly radiating annular membrane. The annular collar is coupled to the proximal end of the outer sheath.

5 Claims, 2 Drawing Sheets



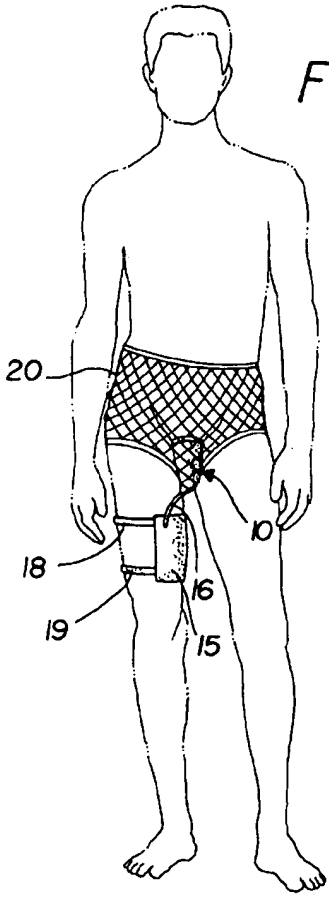


FIG.1

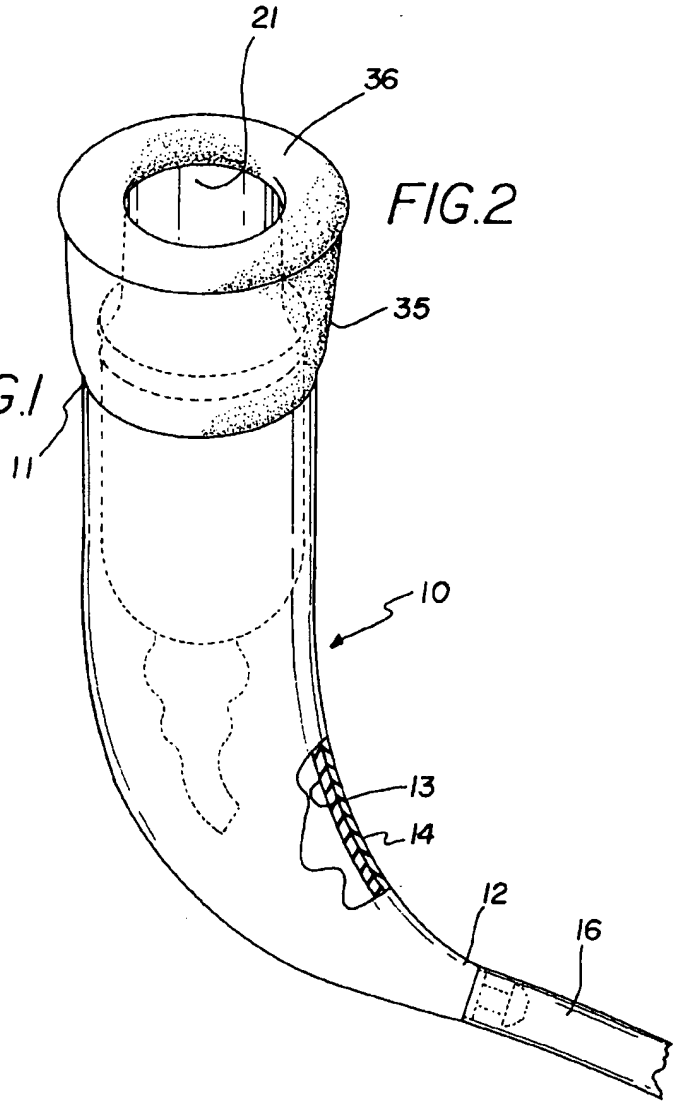


FIG.2

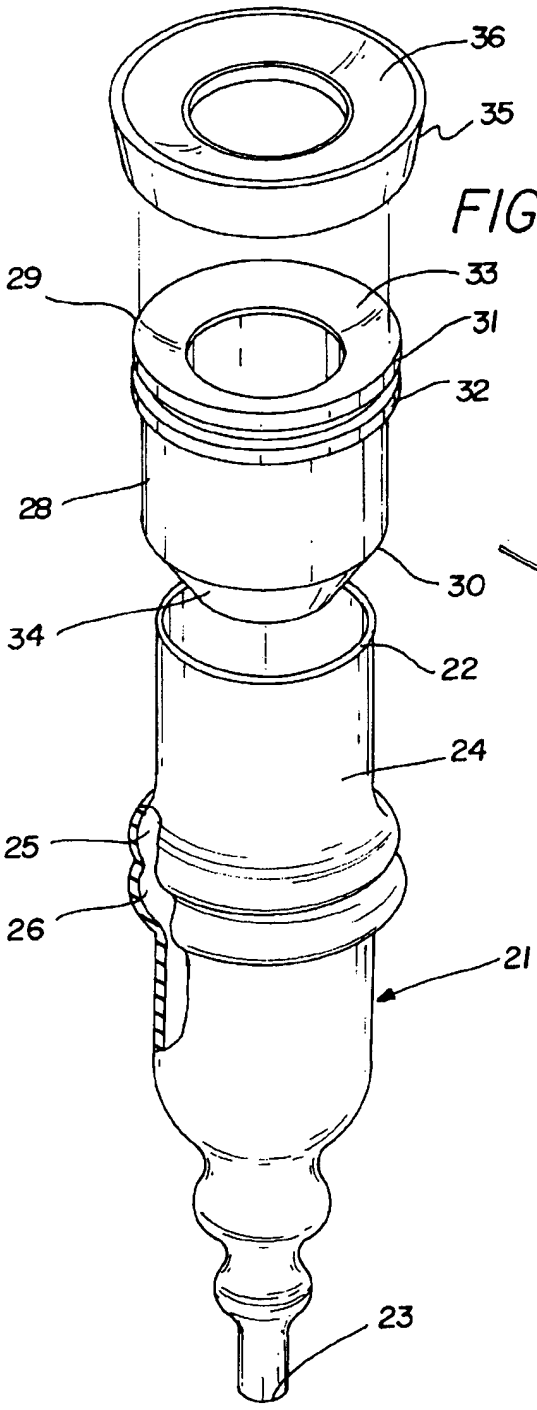


FIG3

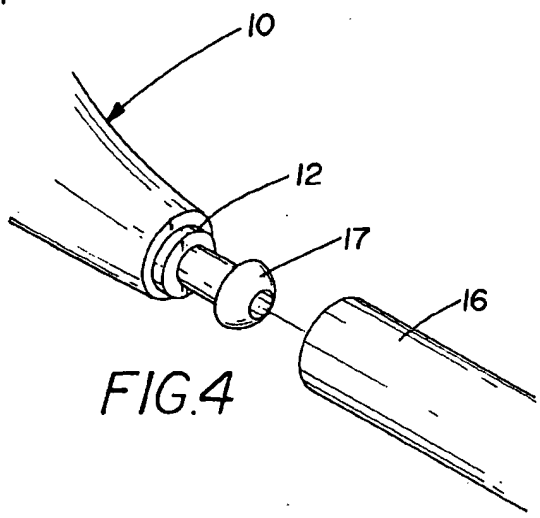


FIG.4

URINARY CATHETER SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to urinary catheters and more particularly pertains to a new catheter system for providing a secure fit over a user's penis.

2. Description of the Prior Art

The use of urinary catheters is known in the prior art. More specifically, urinary catheters heretofore devised and utilized are known to consist basically of familiar, expected and obvious structural configurations, notwithstanding the myriad of designs encompassed by the crowded prior art which have been developed for the fulfillment of countless objectives and requirements.

Known prior art includes U.S. Pat. No. 5,713,880; U.S. Pat. No. 4,020,843; U.S. Pat. No. 4,568,340; U.S. Pat. No. 2,940,450; U.S. Pat. No. 1,372,101; and U.S. Pat. No. Des. 299,865.

While these devices fulfill their respective, particular objectives and requirements, the aforementioned patents do not disclose a new catheter system. The inventive device includes a tubular outer sheath has proximal and distal ends. A collection bag is in fluid communication with the distal end of the outer sheath. A tubular elastic inner sheath is disposed in the outer sheath. The inner sheath has open proximal and distal ends. A tubular insert has open proximal and distal ends and is disposed in the inner sheath. The proximal and distal ends of the insert each has an inwardly radiating elastic annular membrane. An annular collar is provide having a water absorbent inwardly radiating annular membrane. The annular collar is coupled to the proximal end of the outer sheath.

In these respects, the catheter system according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus primarily developed for the purpose of providing a secure fit over a user's penis.

SUMMARY OF THE INVENTION

In view of the foregoing disadvantages inherent in the known types of urinary catheters now present in the prior art, the present invention provides a new catheter system construction wherein the same can be utilized for providing a secure fit over a user's penis.

The general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new catheter system apparatus and method which has many of the advantages of the urinary catheters mentioned heretofore and many novel features that result in a new catheter system which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art urinary catheters, either alone or in any combination thereof.

To attain this, the present invention generally comprises a tubular outer sheath has proximal and distal ends. A collection bag is in fluid communication with the distal end of the outer sheath. A tubular elastic inner sheath is disposed in the outer sheath. The inner sheath has open proximal and distal ends. A tubular insert has open proximal and distal ends and is disposed in the inner sheath. The proximal and distal ends of the insert each has an inwardly radiating elastic annular membrane. An annular collar is provide having a water absorbent inwardly radiating annular membrane. The annular collar is coupled to the proximal end of the outer sheath.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

Further, the purpose of the foregoing abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

It is therefore an object of the present invention to provide a new catheter system apparatus and method which has many of the advantages of the urinary catheters mentioned heretofore and many novel features that result in a new catheter system which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art urinary catheters, either alone or in any combination thereof.

It is another object of the present invention to provide a new catheter system which may be easily and efficiently manufactured and marketed.

It is a further object of the present invention to provide a new catheter system which is of a durable and reliable construction.

An even further object of the present invention is to provide a new catheter system which is susceptible of a low cost of manufacture with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale to the consuming public, thereby making such catheter system economically available to the buying public.

Still yet another object of the present invention is to provide a new catheter system which provides in the apparatuses and methods of the prior art some of the advantages thereof, while simultaneously overcoming some of the disadvantages normally associated therewith.

Still another object of the present invention is to provide a new catheter system for providing a secure fit over a user's penis.

Yet another object of the present invention is to provide a new catheter system which includes a tubular outer sheath has proximal and distal ends. A collection bag is in fluid communication with the distal end of the outer sheath. A tubular elastic inner sheath is disposed in the outer sheath.

The inner sheath has open proximal and distal ends. A tubular insert has open proximal and distal ends and is disposed in the inner sheath. The proximal and distal ends of the insert each has an inwardly radiating elastic annular membrane. An annular collar is provide having a water absorbent inwardly radiating annular membrane. The annular collar is coupled to the proximal end of the outer sheath.

Still yet another object of the present invention is to provide a new catheter system that comfortably holds a catheter in place on a user's penis. This catheter system is worn on and around the penis and does not have any parts that are inserted into the urethra and thereby makes this catheter system even more comfortable for a user to wear.

Even still another object of the present invention is to provide a new catheter system that blocks fluids and moisture from leaking out around the user's penis.

These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be made to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

FIG. **1** is a schematic front view of a new catheter system in use according to the present invention.

FIG. **2** is a schematic perspective view of the present invention.

FIG. **3** is a schematic exploded perspective view of the present invention.

FIG. **4** is a schematic enlarged exploded perspective view of the connection between the flexible tube and the distal end of the outer sheath.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings, and in particular to FIGS. **1** through **4** thereof, a new catheter system embodying the principles and concepts of the present invention will be described.

As best illustrated in FIGS. **1** through **4**, the catheter system generally comprises a tubular outer sheath has proximal and distal ends. A collection bag is in fluid communication with the distal end of the outer sheath. A tubular elastic inner sheath is disposed in the outer sheath. The inner sheath has open proximal and distal ends. A tubular insert has open proximal and distal ends and is disposed in the inner sheath. The proximal and distal ends of the insert each has an inwardly radiating elastic annular membrane. An annular collar is provide having a water absorbent inwardly radiating annular membrane. The annular collar is coupled to the proximal end of the outer sheath.

In closer detail, the urinary catheter system comprises a tubular outer sheath **10** having open proximal and distal ends **11,12**. The outer sheath preferably tapers in diameter towards the distal end of the outer sheath. The outer sheath preferably comprises a non-kinking rigid plastic inner layer **13** surrounded by a soft latex outer layer **14**. The proximal end of the outer sheath has a generally circular opening therein designed for inserting therein a user's penis.

A collection bag **15** is provided for holding a fluid such as urine therein. An elongate flexible tube **16** fluidly connects the distal end of the outer sheath to the collection bag. The distal end of the outer sheath has a mushroom shaped tube connector **17** around the opening of the distal end which is inserted into one end of the flexible tube to couple the distal end of the outer sheath to the flexible tube. Preferably, the collection bag has a pair of straps **18,19** designed for securing the collection bag to a user's leg. A net mesh undergarment **20** may be provided for wear by a user. The undergarment has a plurality of holes therethrough formed by the net mesh. The outer sheath is held in the undergarment when worn by a user such that the flexible tube extends out through one of the holes of the undergarment. Optionally, a hole in the front of the undergarment may be enlarged to permit extension of a distal portion of the outer tube to extent out of the undergarment as well.

A tubular elastic and flexible inner sheath **21** is disposed in the outer sheath. The inner sheath comprising an elastic latex material. The inner sheath has generally circular open proximal and distal ends **22,23**, and a lumen. The inner sheath tapers towards the distal end of the inner sheath so that the proximal end of the inner sheath has greater outer diameter than the distal end of the inner sheath. The proximal end of the inner sheath is outwardly extended from the proximal end of the outer sheath. The distal end of the inner sheath is positioned in the outer sheath between the proximal and distal ends of the outer sheath.

Preferably, the inner sheath has a generally cylindrical proximal portion **24** adjacent the proximal end of the inner sheath designed for receiving a user's penis therein. The proximal portion of the inner sheath has a pair of outwardly radiating annular retaining grooves **25,26** in the lumen of the inner sheath. The retainer grooves of the inner sheath also define corresponding outwardly radiating annular ridges extending from the inner sheath which abut an inner surface of the outer sheath to frictionally hold the inner sheath in a fixed position in the outer sheath. The inner sheath also preferably has a plurality of annular constrictions **27** located towards the distal end of the inner sheath, the annular constrictions of the inner sheath defining therebetween a plurality of bulbous portions of the inner sheath.

A generally cylindrical tubular insert **28** is provided having open proximal and distal ends **29,30**. The insert comprises a rigid plastic material. The insert has a pair of retaining ridges **31,32** outwardly radiating therefrom adjacent the proximal end of the insert. The insert is disposed in the proximal portion of the inner sheath such that the insert is positioned between the proximal and distal ends of the inner sheath. The proximal end of the insert is orientated towards the proximal end of the inner sheath and the distal end of the insert is orientated towards the distal end of the inner sheath. The retaining ridges is inserted into the retaining grooves to hold the insert in a fixed position in the inner sheath.

The proximal and distal ends of the insert each have an inwardly radiating generally frusta-conical elastic annular membrane **33,34**. The elastic membranes each have an inner periphery extending towards the distal end of the inner sheath. The insert is designed for extending therethrough a user's penis inserted into the inner sheath. The elastic membranes are designed for disposing around the user's penis such that the user's penis stretches the elastic collars such that the elastic membranes hold the insert on the user's penis.

An annular collar **35** is provided having a water absorbent inwardly radiating annular membrane **36** such as a chamois material. The annular collar is coupled by friction fitting to the proximal end of the outer sheath such that the proximal end of the inner sheath is positioned in the annular collar. The annular collar is designed for extending a user's penis therethrough to permit insertion of the penis into the inner sheath and insert. The water absorbent annular membrane of the annular collar is designed positioning around the user's penis for absorbing any water based fluids that may leak out from the proximal end of the outer sheath.

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

I claim:

1. A urinary catheter system, comprising:

a tubular outer sheath having proximal and distal ends;

a collection bag in fluid communication with said distal end of said outer sheath;

a tubular elastic inner sheath being disposed in said outer sheath;

said inner sheath having open proximal and distal ends, and a lumen;

a tubular insert having open proximal and distal ends and being disposed in said inner sheath;

said proximal and distal ends of said insert each having an inwardly radiating elastic annular membrane; and

an annular collar having a water absorbent inwardly radiating annular membrane, said annular collar being coupled to said proximal end of said outer sheath.

2. The urinary catheter system of claim **1**, wherein said outer sheath tapers towards said distal end of said outer sheath.

3. The urinary catheter system of claim **1**, wherein an elongate flexible tube fluidly connects said distal end of said outer sheath to said collection bag.

4. The urinary catheter system of claim **1**, wherein said inner sheath has a pair of outwardly radiating annular retaining grooves in said lumen of said inner sheath, wherein said insert has a pair of retaining ridges outwardly radiating therefrom adjacent said proximal end of said insert, wherein said retaining ridges are inserted into said retaining grooves to hold said insert in a fixed position in said inner sheath.

5. A urinary catheter system, comprising:

a tubular outer sheath having proximal and distal ends, said outer sheath tapering towards said distal end of said outer sheath;

said proximal end of said outer sheath having a generally circular opening therein adapted for inserting therein a user's penis;

a collection bag for holding a fluid therein, said collection bag having a pair of straps adapted for securing said collection bag to a user's leg;

an elongate flexible tube fluidly connecting said distal end of said outer sheath to said collection bag;

a tubular flexible inner sheath being disposed in said outer sheath;

said inner sheath having open proximal and distal ends, and a lumen;

said proximal end of said inner sheath being outwardly extended from said proximal end of said outer sheath;

said distal end of said inner sheath being positioned in said outer sheath between said proximal and distal ends of said outer sheath;

said inner sheath having a generally cylindrical proximal portion adjacent said proximal end of said inner sheath adapted for receiving a user's penis therein;

said proximal portion of said inner sheath having a pair of outwardly radiating annular retaining grooves in said lumen of said inner sheath;

a generally cylindrical insert having open proximal and distal ends, said insert comprising a rigid material;

said insert having a pair of retaining ridges outwardly radiating therefrom adjacent said proximal end of said insert;

said insert being disposed in said proximal portion of said inner sheath;

said proximal end of said insert being orientated towards said proximal end of said inner sheath and said distal end of said insert being orientated towards said distal end of said inner sheath;

said retaining ridges being inserted into said retaining grooves to hold said insert in a fixed position in said inner sheath;

said proximal and distal ends of said insert each having an inwardly radiating generally frusta-conical elastic annular membrane;

said insert being adapted for extending therethrough a user's penis inserted into said inner sheath, said elastic membranes being adapted for disposing around the user's penis such that the user's penis stretches said elastic collars such that said elastic membranes hold said insert on the user's penis; and

an annular collar having a water absorbent inwardly radiating annular membrane, said annular collar being coupled to said proximal end of said outer sheath such that said proximal end of said inner sheath is positioned in said annular collar, said annular collar being adapted for extending a user's penis therethrough to permit insertion of the penis into the inner sheath and insert.

* * * * *

United States Patent

[11] 3,526,227

[72] Inventor Louis Appelbaum
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[21] Appl. No. 91
[22] Filed Jan. 2, 1970
[45] Patented Sept. 1, 1970

[54] URINAL BAG
2 Claims, 3 Drawing Figs.

[52] U.S. Cl. 128/295
[51] Int. Cl. A61f 5/44
[50] Field of Search 128/275, 294, 295

[56] References Cited

UNITED STATES PATENTS

1,423,537	7/1922	Muller	128/295
2,310,505	2/1943	Blackburn et al.	128/295
3,203,420	8/1965	Lockhart	128/295
3,405,714	10/1968	Moss	128/295

FOREIGN PATENTS

742,099	11/1943	Germany	128/295
994,274	6/1965	Great Britain	128/295

Primary Examiner—Charles F. Rosenbaum
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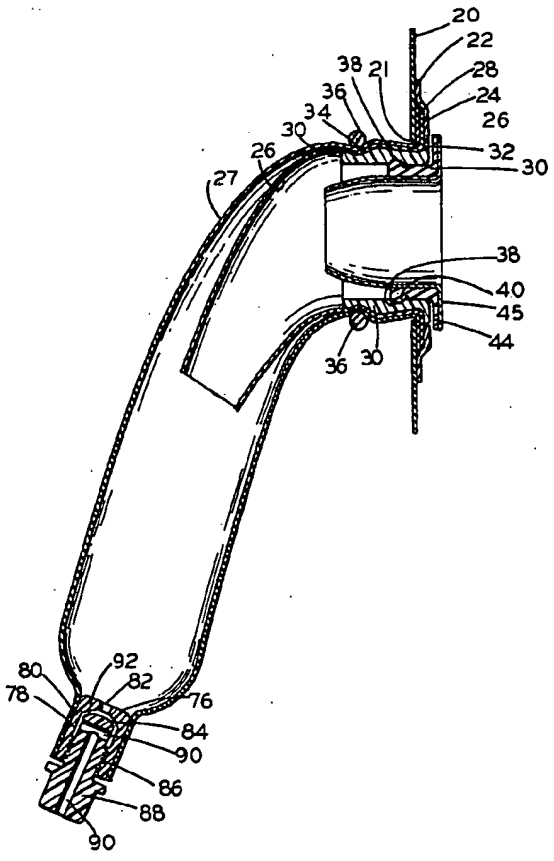
ABSTRACT: Urinal pouch having a resilient support of sheet surgical rubber with a central aperture, a pouch having a manual lower valve with its upper open end annularly bonded around the support aperture, a tubular conical resilient open ended sheath extending from the open end of the pouch and part way thereinto, said sheath being annularly bonded about the aperture, a rigid insert having a short sleeve portion extend into and slightly distending the pouch and sheath, and a flange disposed behind the peripheral area, the sleeve having an external groove, a resilient sealing band disposed around the pouch and conical sheath and annularly compressing the pouch and conical sheath into the groove, the short rigid sleeve having an internal groove, an insert of resilient material having a short sleeve with an annular bead adapted to seat in the internal groove, and a flange adapted to bear against the flange of the rigid insert, the resilient insert having a second tapered tubular resilient sheath extending through the resilient insert, and having a flange portion bonded to the resilient insert flange, and the support having right and left upwardly inclined extensions detachably connected by a resilient back strap, and right and left downwardly inclined extensions of a length to extend around a leg, and buckle means on the first extensions to receive the ends of the downwardly extending extensions.



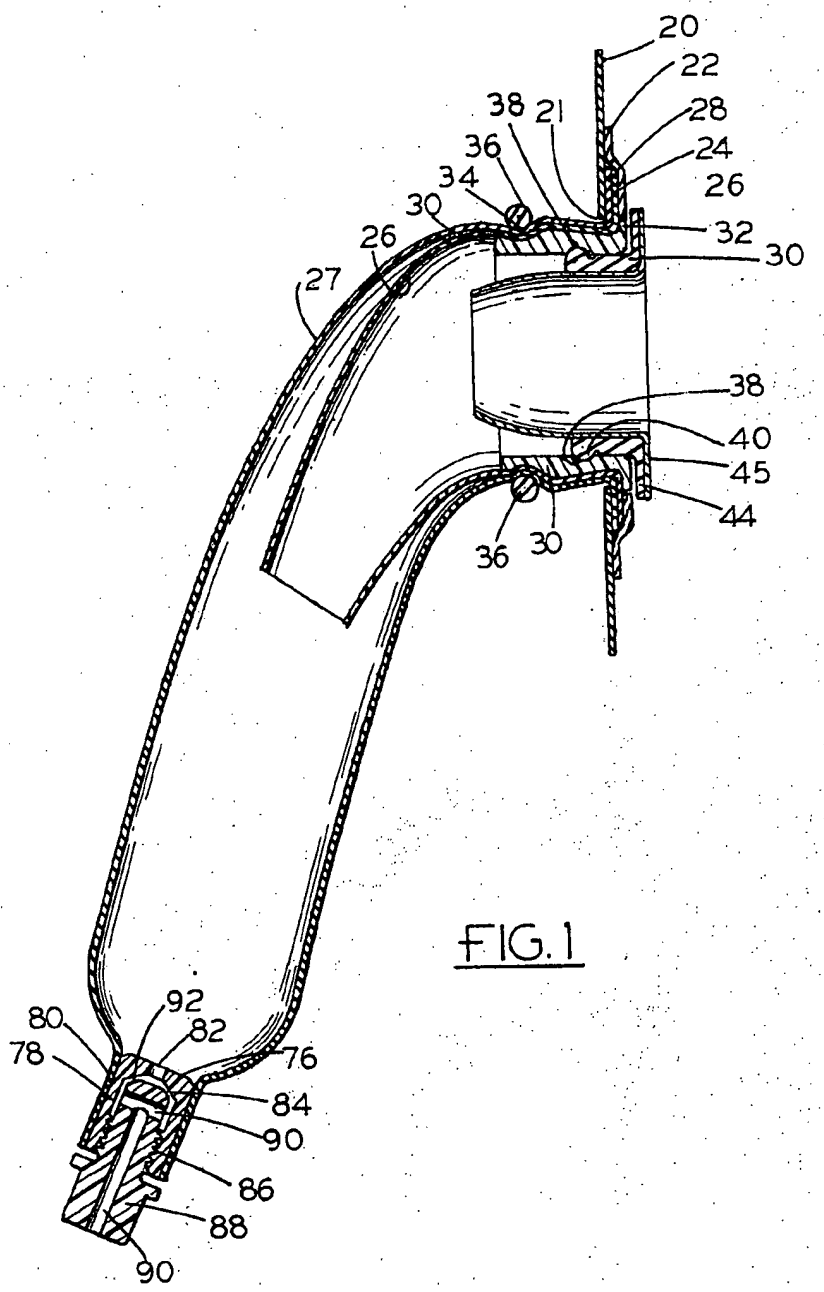


FIG. 1

INVENTOR.
LOUIS APPELBAUM

BY

ATTORNEY

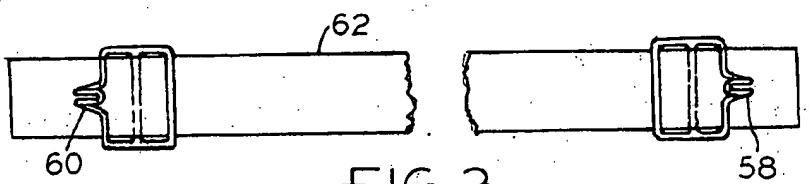


FIG. 3

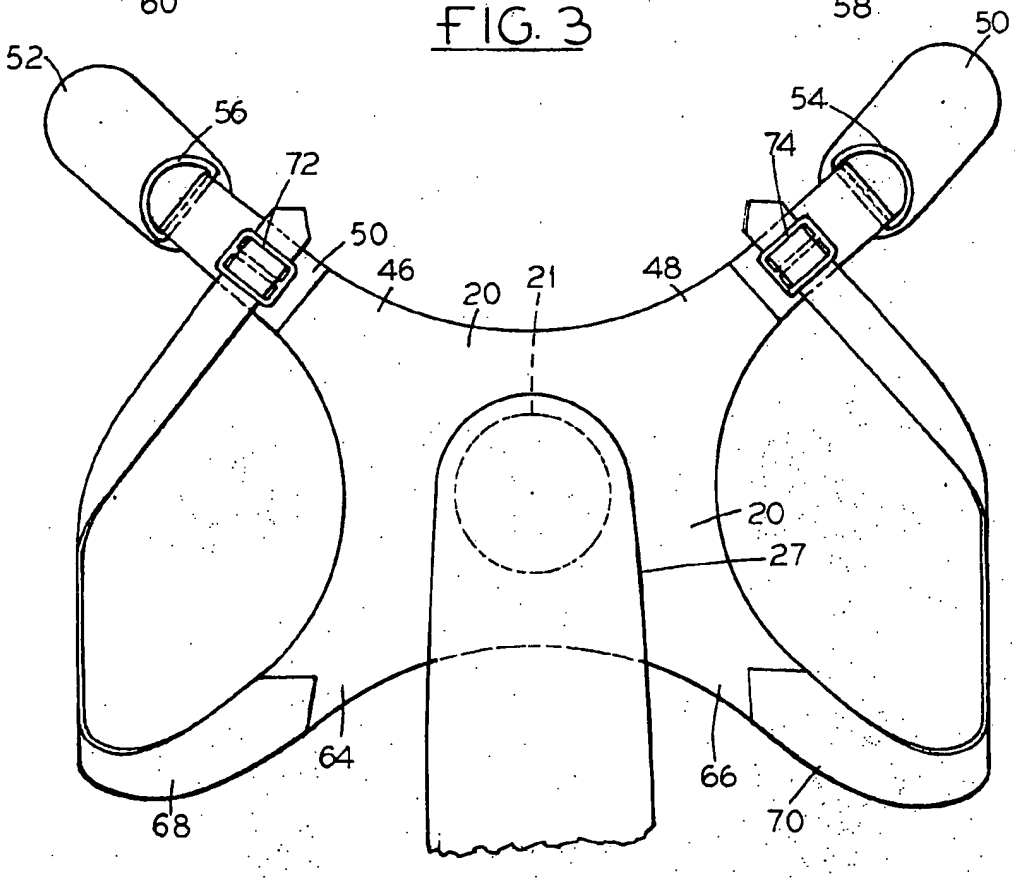


FIG. 2

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ATTORNEY

URINAL BAG

This invention relates to a male urinal bag or pouch capable of being worn continuously, and without danger of leakage or embarrassment when worn by fully clothed persons in erect or prone position.

More particularly the invention relates to a pouch of flexible semi-resilient waterproof material extending from a support panel having leg and waist straps to comfortably secure the device in place. The pouch is provided with a manually actuated valve at its free end to permit drainage when convenient. Further the pouch includes an inner resilient flexible tapered tubular open ended sheath, to provide a sealing effect in conjunction with the male organ of the wearer. Provision is also made for insertion of a further resilient tapered tubular sheath of lesser diameter which may be inserted or removed as required.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein like reference characters indicate like parts:

FIG. 1 is a sectional view of the bag and a portion of the support;

FIG. 2 is a front elevation of the support and pouch, the latter being in part broken away; and

FIG. 3 is a plan view of the back strap, with part broken away.

Referring to the drawings there is shown a support composed of relatively resilient surgical rubber sheet material, having a central panel area or section 20, with an aperture 21. Extending through the aperture is the open end of a pouch 27 of resilient surgical rubber, the open end having a flange 28 bonded to the rear of the central area. Within the pouch is a conical resilient open ended sheath 26 having a flange 24 cemented over or bonded to the flange 28. An annular reinforcement 22 overlies the flanges 24 and 28 and is bonded thereto and to the surrounding back face of the section 20.

A sleeve of nylon or other relatively rigid material 30, having a flange 32 is disposed in the upper end of the pouch and sheath 26, with the flange 32 disposed behind the annular reinforcement 22. The exterior of the sleeve is provided with annular grooves, in one of which, as at 34, the pouch and conical sleeve are seated by pressure of the resilient tension band 36. The pouch and sheath are resiliently distended over the sleeve 30. The internal bore of the sleeve 30 is provided with an internal annular groove 38 adapted to yieldingly receive the external bead 40 of the flanged sleeve 42, the flange being indicated at 44. A resilient conical open ended sheath 43 of a smaller diameter and shorter length than the sheath 26 is disposed in the sleeve 43, and has a flange 45 cemented to the flange 44.

The central support area or section 20 is provided with right and left integral upwardly inclined extensions 46 and 48, each having a body pad 50 beneath D shaped rings 54 and 56. The rings 54 and 56 are adapted to receive the detachable snap hooks 58 and 60 adjustably disposed on the opposite ends of a resilient woven strap 62, which is of a suitable length to extend about the wearer's back. The hooks 58 and 60 are adjustably disposed on the ends of a resilient woven strap 62, to provide suitable tension when the hooks 58 and 60 are secured to the respective rings 54 and 56. The section 20 is also provided with left and right downwardly inclined extensions 64 and 66 having integral resilient soft rubber elongated strap extensions 68 and 70. The strap extensions are of a suitable length to extend below the crotch and behind and around the respective

legs of the wearer, the strap extensions being adapted to be adjustably connected to respective friction strap engaging buckles 72 and 74 disposed on each of extensions 46 and 48 at substantially right angles to the extension. Thus the straps 68 and 70 may extend crosswise of the extensions 46 and 48. The support, or harness as it may be referred to, is adapted to hold the center area 20 flat against the lower abdomen in the scrotum area of the wearer, with the male organ of the wearer projecting into the sleeves 42 and 30 (when both are used) or sleeve 30, when the sleeve 42 is removed to provide for a larger aperture. In either case the conical resilient sheath 26 (or sheath 43 if employed) resiliently embraces the male organ and provides a seal.

The lower end of the pouch is provided with a valve comprising a rigid thimble like seat member 76 of nylon or the like, with its external cylindrical side wall 78 cemented or otherwise bonded to a reduced diameter lower end portion 80 of the pouch. The upper wall of member 76 has a central aperture 82, surrounded on its inside by a conical valve seat 84. The internal wall of the member 76 is threaded as at 86 to receive a threaded plug 88 having a T bore 90 and a conical frustum end portion 92 adapted to engage the seat 84 and seal the opening 82, when the plug is threaded upwardly into the thimble to its upper limit. The lower end of the plug, below the flange 94 is flattened to provide a grip, whereby to facilitate turning and threading the plug manually into sealing relation with the aperture 82, or away from sealing relation, whereby to permit flow of fluids in the pouch outwardly through the T bore 90 for drainage, whenever conveniently desirable. It will be seen from the foregoing that the sleeve 42 is readily inserted or removed, as required to provide the additional sheath 43 for sealing purposes.

While a single form of the invention has been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

I claim:

1. In a urinal pouch adapted for wear by male individuals, a resilient support of surgical rubber or the like sheet material having a central apertured section, a pouch the lower end of which is fitted with a manual valve and the upper open end of which is annularly bonded to the support aperture peripheral area, a tubular conical resilient open ended sheath extending from the open end of the pouch and part way thereinto, said sheath being annularly bonded about the aperture peripheral area, a relatively rigid insert of nylon or the like having a short sleeve portion of a diameter to extend into and slightly distend the pouch and conical sheath adjacent the pouch open end, and a flange adapted to be disposed behind the peripheral area said sleeve having an external groove, a resilient sealing band disposed around the pouch and conical sheath and annularly compressing the pouch and conical sheath into the groove, said short rigid sleeve having an internal groove, and an insert of resilient material having a short sleeve with an annular bead adapted to seat in said internal groove, and a flange adapted to bear against the flange of the rigid insert, said resilient insert having a second tapered tubular resilient sheath extending through the resilient insert, and having a flange portion bonded to the resilient insert flange.

2. A urinal pouch according to claim 1 wherein the support comprises right and left upwardly inclined extensions detachably connected by a resilient back strap, each extension having a transverse buckle, and right and left downwardly inclined extensions, each of a sufficient length to extend around the leg of the wearer to one of said transverse buckles, for securing therein.

April 15, 1924. 1,490,793

L. G. AJAMIAN ET AL

SANITARY URINE TUBE FOR INFANTS

Filed June 6, 1923

Fig. 1.

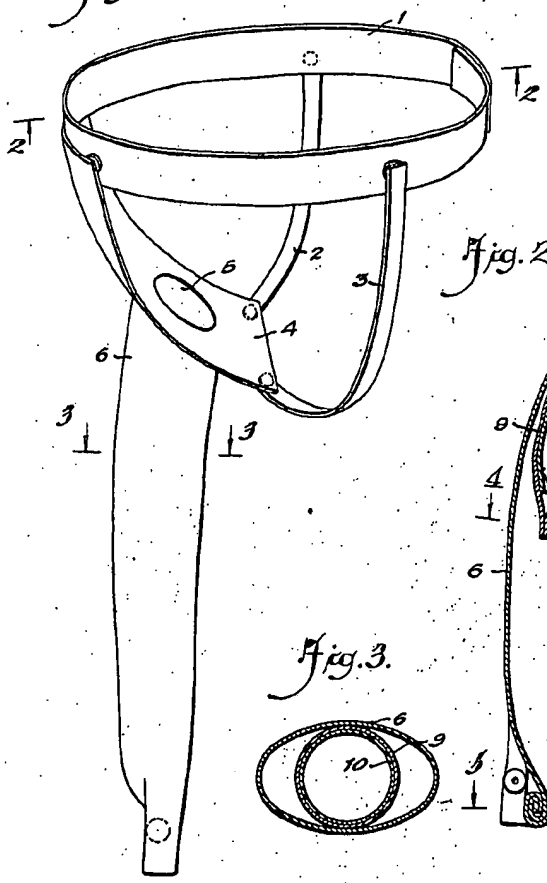


Fig. 2.

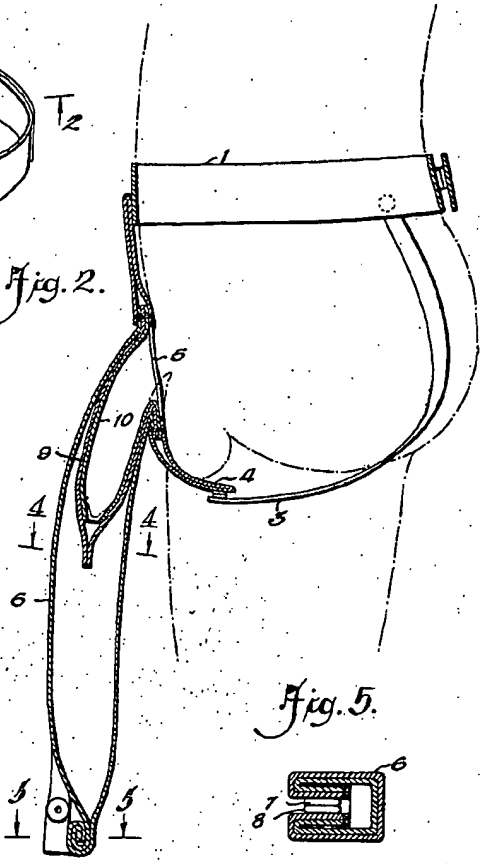


Fig. 3.

Fig. 5.

Fig. 6.

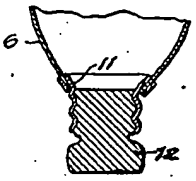
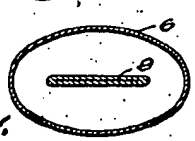


Fig. 4.



WITNESSES

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BY

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ATTORNEYS

Patented Apr. 15, 1924. 1,490,793

UNITED STATES PATENT OFFICE.

LISAF G. AJAMIAN AND YERVANT E. AJAMIAN, OF WEST HOBOKEN, NEW JERSEY.

SANITARY URINE TUBE FOR INFANTS.

Application filed June 6, 1923. Serial No. 643,734.

To all whom it may concern:

Be it known that we, LISAF G. AJAMIAN and YERVANT E. AJAMIAN, citizens of the United States, and residents of West Hoboken, in the county of Hudson and State of New Jersey, have invented a new and Improved Sanitary Urine Tube for Infants, of which the following is a full, clear, and exact description.

This invention relates to a sanitary urine tube or receptacle for use in connection with infants or adults.

An object of the invehtion is to provide a sanitary, removable, easily cleansed receptacle which can be readily attached to and removed from the person of the wearer for the reception of liquid, especially in the case of male persons.

Another object concerns the provision of means whereby this receptacle can be very easily kept in a clean, sanitary condition, and is constructed to be as unobtrusive as possible.

A further object concerns the provision of means whereby the use of this article causes a minimum of confusion and irritation.

The invention is illustrated in the drawings, of which—

Figure 1 is a perspective view of the device;

Fig. 2 is a section taken on the line 2—2 f Fig. 1, showing in dot-and-dash lines the relation of the human figure to the device in use;

Fig. 3 is a section taken on the line 3—3 of Fig. 1;

Fig. 4 is a section taken on the line 4—4 of Fig. 2;

Fig. 5 is a section taken on the line 5—5 of Fig. 2; and

Fig. 6 is a section on the lower end of the tubular part of the device showing a modified form thereof.

The form of the invention shown in the drawings is a preferred form, although it is understood that modifications in the construction and arrangement of the parts and in the character of the materials used may be adopted without departing from the spirit of the invention.

In handling infants and certain types of adults, especially invalids, it is often found that discharges of liquid therefrom are not easily controllable, and for that reason it is highly necessary to provide some means to receive such liquids, which device can be attached to the person of the wearer, can be readily removed, and can be easily cleaned and kept in a sanitary condition.

To this end I provide a tubular member, preferably made of some waterproof material, attached to the body of the wearer and at its lower end so folded and held together by suitable fastening means as to be liquid tight but capable, when the fastening means is unfastened, of being opened to remove the discharge of liquid therefrom. Near the upper end of this tubular member or receptacle is a valve arrangement or auxiliary chamber constructed to permit the flow of liquid therethrough in one direction but not in the reverse direction. Into this auxiliary chamber the genital organ of male persons projects, so that any discharge therefrom will be properly received. This tubular member or receptacle is attached to a body portion of suitable material, such as linen, although it may be made of stiffer material, such as heavy rubber or waterproof fabric; and this sheet of material or support acts also to lie against the genital organs to support them. The support is attached to the body of the wearer by being connected at one end to a belt or strip passing around the waist, and at the other end by strips passing beneath the groin.

As shown particularly in the figures, the apparatus includes a belt 1 adapted to pass around the waist, and two strips 2 and 3 adapted to pass beneath the legs of the wearer underneath the groin. The ends of these strips 2 and 3 are connected by suitable snap fasteners to one end of a sheet 4 to act as a support for certain of the genital organs, preferably male persons. The other end of this sheet or support is connected by snap fasteners to the front of the belt 1. This sheet or support is provided with an aperture 5 to which one end of a tubular member or receptacle 6 is fastened in any suitable manner, such as by sewing. This tubular member or receptacle at its lower end is folded, as shown in Figs. 2 and 5, and when folded is held in this condition by snap fasteners such as 7 and 8 so that when f lded the lower end is sufficiently tight to pr hibit the outfl w of liquid from the receptacle. When, however, these fasteners are unfastened and the folds are shaken out, the lower end of the tubular receptacle is

entirely open, permitting the liquid to pass out. The material f which this tubular member is made is, of course, no part of the invention except that it should preferably be of some waterproof material like rubber or waterproof linen. In the upper end of the receptacle is an auxiliary chamber 9, also formed of waterproof material, fastened at its upper end to the upper end of the receptacle 6, but at its lower end hanging over within said receptacle. This lower end is preferably drawn together at its edges so that liquid discharged within this auxiliary receptacle will pass out thereof into the main receptacle 6 but will not have a tendency or be able to pass back. This auxiliary receptacle or chamber 9 is preferably lined with some soft material 10, which may preferably be cotton or linen, because into this auxiliary receptacle there projects one of the genital organs and irritation of this organ is not desirable, and for this reason the soft lining is provided.

As shown in Fig. 6, the bottom of the main receptacle may be provided with a suitable metallic discharge plug 11 which can be closed by an ordinary stopper 12 of any suitable design.

It will, therefore, be seen that I have provided a simple, efficient device which can be used to avoid unnecessary and embarrassing conditions due to faulty control of urine flow, which is, nevertheless, something that can be worn unobtrusively and is easily removed from the body and can be easily kept clean at all times.

What we claim is:

1. A sanitary receptacle which includes a tubular waterproof receptacle having a normally open bottom provided with a plurality of folds, a fastening means attached thereto to hold the lower folded end closed when said end is folded, an auxiliary receptacle or chamber at the other end of said main receptacle adapted to receive a male genital organ, and a valve in the lower end of said auxiliary receptacle permitting the flow of liquid therethrough in one direction only.

2. A sanitary receptacle which includes a tubular waterproof receptacle having a normally open bottom provided with a plurality of folds, a fastening means attached thereto to hold the lower folded end closed when said end is folded, an auxiliary receptacle or chamber at the other end of said main receptacle adapted to receive a male genital organ, a valve in the lower end of said auxiliary receptacle permitting the flow of liquid therethrough in one direction only, and lining of soft non-irritating material for said auxiliary chamber or receptacle.

3. A sanitary receptacle which includes a tubular waterproof receptacle having a normally open bottom provided with a plurality of folds, a fastening means attached thereto to hold the lower folded end closed when said end is folded, an auxiliary receptacle or chamber at the other end of said main receptacle adapted to receive a male genital organ, a valve in the lower end of said auxiliary receptacle permitting the flow of liquid therethrough in one direction only, a supporting sheet to which the upper end of said tubular member is fastened, and a waistband to which one portion of said supporting sheet is fastened.

4. A sanitary receptacle which includes a tubular waterproof receptacle having a normally open bottom provided with a plurality of folds, a fastening means attached thereto to hold the lower folded end closed when said end is folded, an auxiliary receptacle or chamber at the other end of said main receptacle adapted to receive a male genital organ, a valve in the lower end of said auxiliary receptacle permitting the flow of liquid therethrough in one direction only, a supporting sheet to which the upper end of said tubular member is fastened, a waistband to which one portion of said supporting sheet is fastened, and a strip member connected to the waistband passing between the groin and connected to the other end of said supporting sheet.

LISAF G. his × mark AJAMIAN.
YERVANT E. AJAMIAN

Witness to mark:
GEORGE H. EMSLIE.

Feb. 9, 1943. L. I. BLACKBURN ET AL 2,310,505

URINAL BAG

Filed Dec. 5, 1941

Fig. 1.

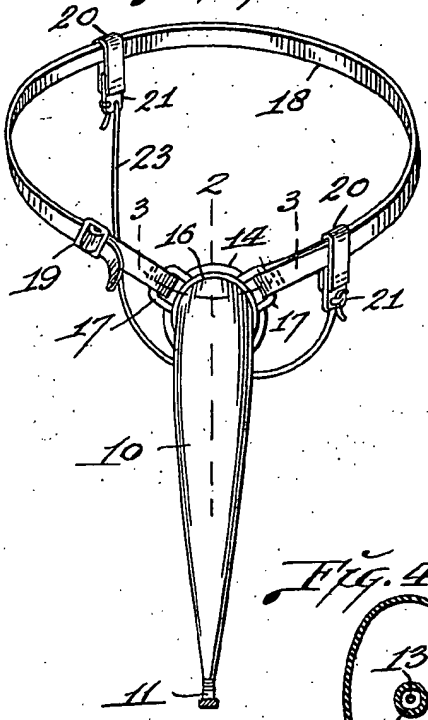


Fig. 2.

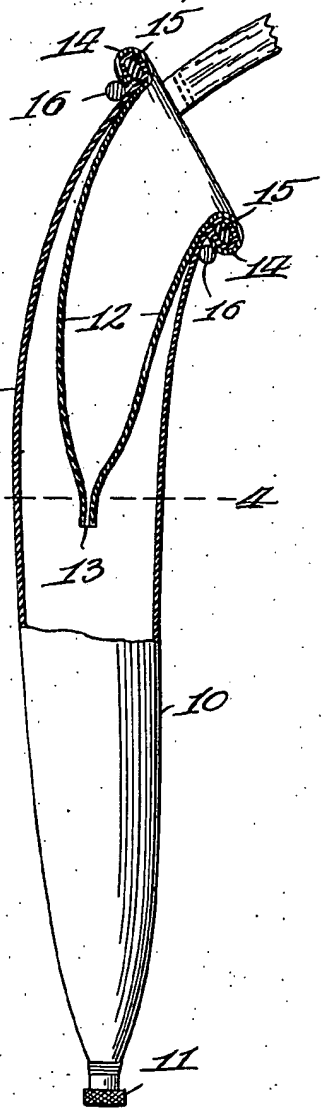


Fig. 4.

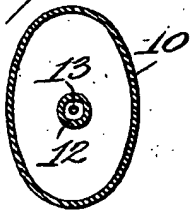
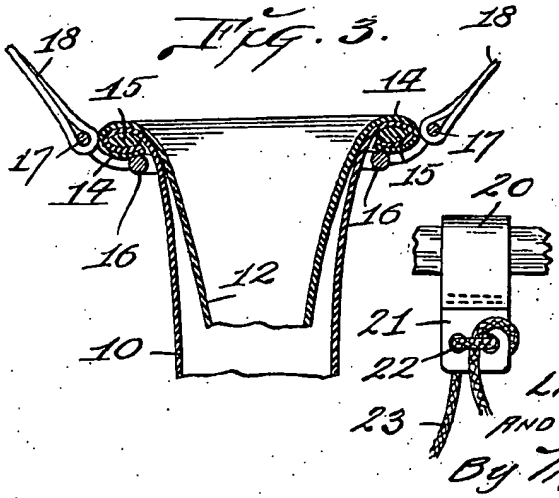


Fig. 3.



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AND LEANDER de CORDOVA.
By Martin P. Smith Atty.

Patented F b. 9, 1943

2,310,505

UNITED STATES PATENT OFFICE

2,310,505

URINAL BAG

Lila I. Blackburn and Leander de Cordova,
Los Angeles, Calif.

Application December 5, 1941, Serial No. 421,702

3 Claims. (Cl. 128—295)

Our invention relates to a urinal bag, and has for its principal objects, to provide a simple, practical and effective bag-like member composed of flexible waterproof material, preferably rubber, to be worn by males who are unable to control the evacuation of their urine and further, to provide simple and efficient means for conveniently maintaining the bag in comfortable position upon the wearer's body.

Further objects of our invention are, to provide a urinal bag which will enable the wearer to urinate comfortably, without fear, annoyance and embarrassment, further, to prevent males having weak bladders from wetting the clothing and bedding, further, to provide a readily removable closure at the lower end of the bag in order to enable the contents of the bag to be conveniently discharged and further, to construct the bag with a trap that functions to effectively prevent the escape of urine from the mouth of the bag while the wearer thereof is sitting or lying down.

With the foregoing and other objects in view, our invention consists in certain novel features of construction and arrangement of parts which will hereinafter be more fully described and claimed and illustrated in the accompanying drawing, in which:

Fig. 1 is a front elevational view of a urinal bag constructed in accordance with our invention.

Fig. 2 is an enlarged vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged horizontal section taken on the line 3—3 of Fig. 1.

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2.

Fig. 5 is an elevational view of an adjustable loop which forms a point of attachment for elastic holding member.

Referring by numerals to the accompanying drawing which illustrates a preferred embodiment of our invention, 10 designates an elongated bag composed of flexible, waterproof material, preferably rubber, and the lower end of said bag is provided with a discharge opening which is normally closed by a readily removable plug or screw cap 11.

Positioned within the upper portion of the bag 10 is a short bag-like member 12 of thin, flexible waterproof material, preferably rubber and formed at the lower end of said member is a small opening 13.

The upper portion of the wall of member 12 is suitably secured, either by vulcanizing or by an adhesive, the upper portion of the wall of bag 10, thus forming a wall portion 14 of double thickness which serves as a reinforcement for the upper portions of the two bags.

A ring 15 of flexible material, preferably rubber surrounds the upper portion of bag 10, and when the latter is made ready for use, the united portions 14 of the walls of the bag are turned outwardly and wrapped around said ring, thus holding open, the upper ends of both bags.

The body of the flexible ring 15 is oval in cross section so as to minimize thickness of the open upper end of the structure.

Surrounding and loosely arranged upon the upper portion of the bag 10 just below the ring 15 and the wall portion 14 of double thickness which covers said ring, is a ring 16 of rigid or semi-rigid material and formed integral with the upper outer portions thereof on opposite sides of its center are loops 17 which provide points of attachment for the ends of a two part strap 18 which encircles the wearer's body just below the waist line.

The free end of one part of strap 18 carries a buckle 19 which receives the free end of the other portion of the strap, thus enabling the entire strap to be comfortably adjusted on the body.

The end portions of the strap 18 adjacent the loop 17 are curved downwardly so as to lie comfortably on the groin portions of the body and enable the ring 15 and upper ends of the bags 10 and 12 to receive the penis without discomfort.

Mounted to slide freely on strap 18 are loops 20, preferably of fabric such as tape, from which depend small plates 21, of Celluloid fairly stiff leather or the like.

Formed in each plate 21 is a pair of apertures 22 which receive the ends of an elastic cord 23 which passes through the wearer's crotch, thus exerting a certain degree of downward pull on the front and rear portions of the belt and prevents the same from working upward on the wearer's body.

In applying our urinal bag for use, the penis is received by inner bag 12 and after the strap 18 is comfortably adjusted on the body, the elastic cord 23 is passed between the wearer's legs and the ends of said cord are adjustably connected to the perforated plates 21.

Thus the ring 15 exerts pressure against the connected upper portions of the walls of the bags 10 and 12 and against the flexible ring 15 around which the doublewalled portions of the bags are wrapped, thus firmly and at the same time com-

fortably maintaining the bag in proper position.

As urine is passed by the wearer it will flow downwardly through the inner bag 12 and discharge therefrom through the small aperture 13 into the larger longer bag 10.

When convenient the accumulation of urine in bag 10 may be voided by removing cap 11.

Inasmuch as inner bag 12 extends a substantial distance downwardly into the bag 10, a trap is formed between the bags to prevent the escape of urine from the structure while the wearer is sitting or lying down and the effectiveness of this trap is materially increased by providing the inner bag 12 with a small discharge orifice at its lower end.

The construction of the bag is such that it may be easily and quickly cleansed and thereby maintained in a sanitary condition.

Thus it will be seen that we have provided a urinal bag that is relatively simple in construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form and construction of the various parts of our urinal bag may be made and substituted for those herein shown and described without departing from the spirit of the invention, the scope of which is set forth in the appended claims.

We claim as our invention:

1. In a urinal bag, an elongated bag of flexible waterproof material provided at its lower end with an outlet, removable means normally closing said outlet, a shorter bag of flexible waterproof material positioned within the upper portion of the first mentioned bag and provided at its lower end with a restricted outlet, the upper end portions of the walls of the two bags being permanently secured to each other, a ring surrounding the connected portions of the two bags, said connected portions being wrapped around said ring, a second ring surrounding upper portions of the bags and bearing on the portions thereof that are wrapped around the first mentioned ring and adjustable means connected to said second ring for securing the bag in position upon wearer's body.

2. In a urinal bag, an elongated bag of flexible waterproof material provided at its lower end with an outlet, removable means normally closing said outlet, a shorter bag of flexible waterproof material positioned within the upper portion of the first mentioned bag and provided at its lower end with a restricted outlet, the upper end portions of the walls of the two bags being permanently secured to each other, a ring surrounding the connected portions of said bags with said connected portions wrapped around said ring, a second ring encircling the upper portions of the bags and bearing upon the portions thereof that are wrapped about the first mentioned ring, a body encircling belt secured to said mentioned ring and an elastic cord adjustably connected to said belt and adapted to pass through the wearer's crotch.

3. In a urinal bag, an elongated bag of flexible waterproof material provided at its lower end with an outlet, means for normally closing said outlet, a shorter bag of flexible waterproof material within the upper portion of said first mentioned bag and provided at its lower end with a restricted outlet, the upper portions of the two bags being permanently secured to each other, a flexible ring surrounding the connected portions of the bags, said connected being wrapped around said flexible ring, and means for securing the bag in position upon a wearer's body, which securing means includes a ring that surrounds the upper portions of the bags that are wrapped around said first mentioned ring.

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URINAL.

APPLICATION FILED MAR. 27, 1911.

1,015,905. Patented Jan. 30, 1912.

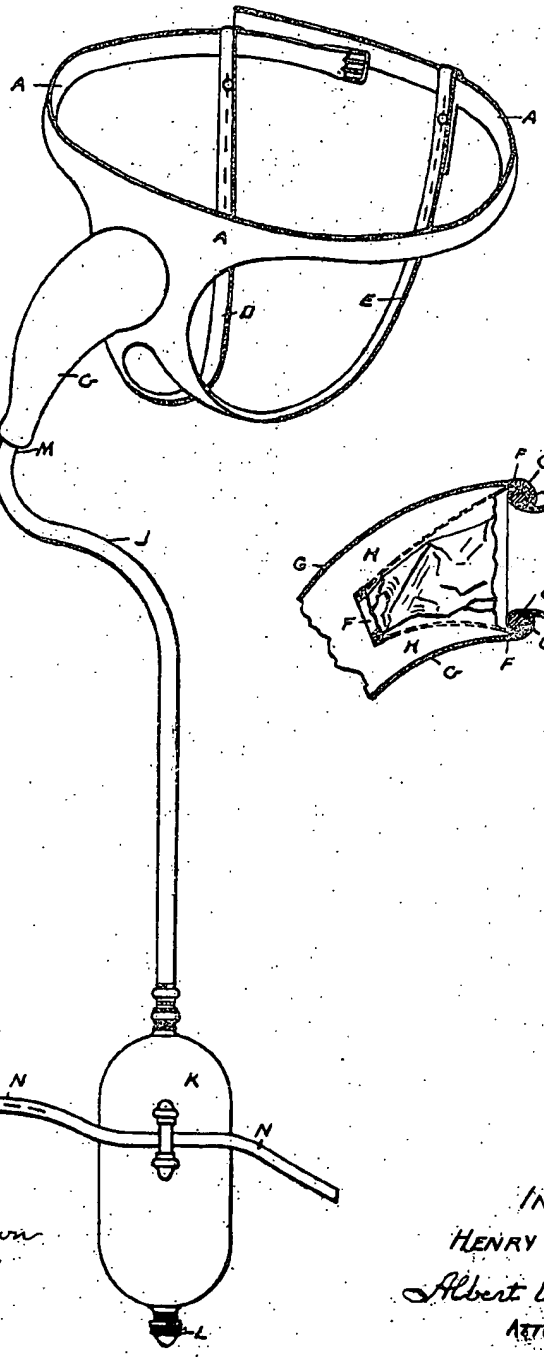

FIG. 1.

FIG. 2.

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URINAL.

1,015,905. Specification of Letters Patent. Patented Jan. 30, 1912.

Application filed March 27, 1911. Serial No. 617,288.

To all whom it may concern:

Be it known that I, HENRY B. NORTHROP, a citizen of the United States, residing at the town of Beverly, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Urinals, of which the following is a specification.

This invention relates to urinals such as are used by males troubled with incontinence of their urine; and the invention consists in a urinal of this class composed of an encircling body-band and straps connected at their opposite ends thereto and arranged for passing under the pelvis of the person, in combination with a collar or ring held and positioned on and projecting from said body-band for the penis to pass freely and unobstructed therethrough, an inner water-proof sack and an outer water-proof sack, each open at its opposite ends and each detachably attached at one of its open ends to and held on and extended from said projected collar of the body-band, and the outer sack to be over and beyond and substantially spaced from the inner sack, and the inner sack, at its unattached open end, suitably adapted to receive and resiliently hold the penis, and the outer sack at its unattached open end, suitably adapted for connection with a water-proof bag to receive and hold the discharged urine. And in carrying out the invention above set forth, it is preferable to have both of said water-proof sacks elastic and resilient and especially to adapt each for a slip-joint with and on the projected-collar of the body-band, and also to have the inner sack of thin sheet india rubber, not only elastic and resilient but also flexible and possessing all such qualities to an extent sufficient to permit of the sack being distorted or crumpled without substantial limit and with no danger of impairment thereof, all of which constitute features of this invention.

In the accompanying sheet of drawings, forming a part of this invention, Figure 1 is a perspective view on a reduced scale of the urinal complete in all its parts. Fig. 2 is an enlarged sectional view, as hereinafter appears.

In the drawings, A is the body-band.

D, E are the straps to pass under the pelvis of the person.

C is the collar or ring held on and projected from the body-band and through which the penis is to pass.

F and G are, respectively, the inner and outer water-proof sacks, each open at its opposite ends, and each at its larger open end attached thereby to the collar C, by slipping it thereover, such portion at least of each being elastic and resilient to enable them to be slipped on and off of the collar and on the collar to be held by their contraction with reasonable tightness to prevent their possible accidental detachment.

The body-band A and pelvis-straps D, E are each provided with suitable fastenings, such as buckles to adjust and fasten them in their desired position. The sacks F, G are, preferably, of horn shape from end to end, and vary in size, the inner sack being the smaller and shorter of the two, and the outer sack is sufficiently larger than the inner sack to leave a clear and unobstructed space H between them. Preferably both sacks are made of elastic and resilient india rubber. The outer sack is sufficiently stiff to resist being unreasonably pressed out of shape, but the inner sack is preferably made of thin sheet-rubber, elastic and resilient and flexible to the highest degree so that it can be readily distorted and crumpled in its shape and without danger of its impairment and of its hold, by its outer open end, of the penis of the person wearing the urinal, and which in being worn extends from the person's body through the inner sack and its outer open end, from which it properly projects.

The inner sack, Fig. 2, is shown at its full size in dotted lines, except for a portion at its opposite open ends, and it is shown in full lines as crumpled or distorted, between said two ends.

The outer sack, at its outer open end, is connected, preferably, detachably, by a tube J with a bag K suitable to receive and hold the urine as discharged and adapted at one end L to be opened and closed when its contents are emptied, and at the other end to be attached and detached from the sack.

A urinal, such as has been explained, in wear, is most comfortable, easy and pliable to all movements of the body and penis of the person, and in no way is it disagreeably confining to the parts directly in connection and on which any of its part or parts may bear.

The bag K has a sliding strap N for securing it to the leg of the wearer.

Having thus described my invention what

I claim and desire to secure by Letters Patent is,

1. A urinal for use of males consisting of an adjustable body-band, a collar or ring and adjustable pelvis-straps held on said body-band, in combination with an inner and an outer water-proof sack, each open at its opposite ends and both at one of their open ends detachably attached to said band-collar and the two spaced from each other, and with a bag or receiver detachably connected to the outer open end of said outer sack.

2. A urinal for use of males consisting of an adjustable body-band, a collar or ring and adjustable pelvis-straps held on said body-band, in combination with an inner and an outer water-proof sack each open at its opposite ends and both at one of their open ends adapted for a detachable and resilient slip-joint with said band-collar and the two spaced from each other, and with a bag or receiver detachably connected to the outer open end of said outer sack.

3. A urinal for use of males consisting of an adjustable body-band, a collar or ring and adjustable pelvis-straps held on said body-band in combination with an inner and an outer water-proof sack each open at its opposite ends and both at one of their open ends detachably secured to said band-collar, and the two spaced from each other, and the inner made of thin sheet elastic and resilient india rubber capable of distortion and crumpling, and with a bag or receiver detachably connected to the outer open end of said outer sack.

In witness whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY B. NORTHROP.

Witnesses:
ALBERT W. BROWN,
MARION E. BROWN.